Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 CAS 8,3 b

1. Edition

Εn

PES 6 A 95 D 420 LS 2551

RSV 375-1050A2B2033R

supersedes company Case A-504 BD

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,15-2,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-control valve)
1050	12,2+0,1	9,6-9,8	0,3 (0,6)	2	3	6
375	8,2-8,3	1,6-2,2	0,3 (0,6			·
]		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed		Interme	diate rate	d speed	(4)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rewimin	Control rod travel mm
·	2	3	14	5	6	17	8	9	10	11
1oose	800	0,3-1,0	-	-	-	ca.28	375	7,6	1050	12,2-12,3
*.	X =						150	min.19,0	425	12,9-13,5
ca,51		1090-1100 1215-1245 0,3-1,7					375 530-570	8,0-8,2 = 3,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

n 40°C (104°E)	Rotational- speed limitat	Ga Fuel delivery characteristics		Idle	uel delivery 5	4a Idle stop	
m ³ /1000.strokes	changed to) rev/min 3	rev/min 4	cm#/1000 strokes 5	rev/min	cm#1000 strakes 7	rev/min 8	Control rod travel mm 9
96,0-98,0 93,0-101,0)	1090-1100*	800	95,0-99,0 (92,0-102,0)	100	130,0-150	,0 -	-
	96,0-98,0	p 40°C (104°F) m³/1000 strokes Note changed to) rev/min 3 96,0-98,0 1090-1100*	p 40°C (104°F) m³/1000 strokes Note changed to) rev/min 3 96,0-98,0 1090-1100* 800	Note changed to) rev/min cm:/1000 strokes 5 96,0-98,0 1090-1100* 800 95,0~99,0	Note changed to) rev/min 3 rev/min 6 rev/min 6	Note changed to) rev/min cm²/1000 strokes 3 4 5 7 (20,000 strokes 4 5 100 130,0-150)	Note changed to) rev/min 3 rev/min cm*/1000 strokes rev/min cm*/1000 strokes rev/min 6 7 8 6 7 8 6 6 7 6 7 7 6 7 7 7

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 6. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Féderal Républic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 GUS 31,8 a

2. Edition

En

PE 12 P 130 A 120 RS 3094

RQV 350-900 PA 602 -

supersedes 82 companyGuascor engine: E 318

1 -12 - 9 - 4 - 5 - 8 -11 - 2 - 3 -10 - 7 - 6 0 -45 -50 -105-120-165-180-225-240-285-300-345° - 0,5° (+0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,8 - 2,9

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes	mm 6
900	9,4-9,5	25,5 - 25,9	0,5(0,9)			
350	4,0-4,2	2,1-2,7	C,8(1,2)			
				į		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	· · · · · · · · · · · · · · · · · · ·	Intermediate	rated sp	eed	Lower rated	speed	Sliding sleeve travel		
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	1
1	2	3	4	5	6	7	8	9	10	mm 11
max.	940	15,2-17,8	_	-	-	ca. 10	100	min.5,6	300	1,0-1,2
ca. 60	8,4 4,0	940-950 970-1000					350	4,0-4,2	500 700	2,8-3,2 4,7-5,1
	1100	0 - 1,0					420-4	80 = 2,0 mm	900	7,7
						(3a)				

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-foad delivery Control-rod stop Test oil tamp, 40°C (104°F)		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir		Torque-control (travel	
rev/m:n	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	сля ўлюў Останея х	rev/min	travel mm
1	2	3	4	5	8	7 mm RW	8	9
900	255, 0-259, 0 (25 2 , 0-262, 0)	940-950 *	-	•	100	19,5 - 21,0	-	
						•		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SCA 8,0 e

5. Edition

En

PE 6 P 110 A 720 RS 393

Testoil-ISO 4113

RQV 200-1200 PA 467 R.

supersed \$2 82 company Scania D8 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed	Control rad travel	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	12,0+0,1 7,0-7,2	9,5 - 9,7 0,8 - 1,2	0,4(0,8)			2,5 ⁺ 0,1 (max.2·,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		In	ntermediate	rated spe	ed	Lower rated	speed		Sliding sl	eeve trav el
	rev/min Control	Control rod travel		egree of effection		Control rod travel	Degree of deflection		Control rod travel		0
	rod travel mm	mm rev/min (2	\ I -	f control ever	rev/min	mm ④	of control lever	rev/min	тт 3	rav/min	mm
1	2	3	4		5	6	7	8	9	10	11
max.	1200 1500	15,2-17,8 0 - 1		-	•	49	ca. 14	100 225	min.8,8 7,0-7,2	200 550 850	1,0-1,2 4,2-4,8 5,8-6,0
ca. 61		1240-1250 1375-1405								1200	8,1
	7,0	13/3 1100	´			1	260-360				
							3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d	d stop	limitation	Fuel deliv	ery characteristics 5a peed (5b)	idle		Torque-control (5) travel	
Test oil temp. 40°C (104°F) (2) rev/min cm³/1000 strokes t 2		rev/min	rev/min	cm³/1000 strokes	switchin rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1200	95,0 - 97,0 (92,0 - 100,0	1240-1250 *	600	88,5 - 91,5 (85,5 - 94,5)	100	170,0-210,0 20,0 - 21,0 mm RW 8,0-12,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 PEN 10,0 e 2

1. Edition

<u>En</u>

PE 6 P 110 A 320 RS 3109

RSV 200-900 P1/421

supersedes Volvo-Penta TD 100 G engine 203 kW (276 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45-3,65)

mm (from BD=RW 9,0-12,0 mm

•••••	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensionir (torque-control valv	
mm (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm	
$_{2}$	3	4	2	3	6	
12,6+0,1	16,6-16,8	0,4 (0,8)				
4,2-4,4	1,7-2,1	0,3 (0,6)				
			1			
	12,6+0,1	cm³/100 strokes 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 cm ³ /100 strokes cm ³ /100 strokes 2 12,6+0,1 16,6-16,8 0,4 (0,8)	2 cm ³ /100 strokes cm ³ /100 strokes cm ³ /100 strokes mm 2 12,6+0,1 16,6-16,8 0,4 (0,8)	cm ³ /100 strokes cm ³ /100 strokes 2 cm ³ /100 strokes 2 cm ³ /100 strokes 3 cm ³ /100 strokes 3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm	Control rod travel mm rev/min	Interme	ediate rate	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	1 4	rque control Control rod travel mm
loose	800 x =	0,3-1,0 4,0	-	•	-	ca. 19	250 250	3,8 4,2-4,4	-	-
ca.46	11,6 4,0 1140	940-950 970-1000 0,3-1,7					270-33	=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(29)	II-load stop	6 Rotational- speed limitat	11.324.1	el delivery aracteristics	Starting f	uel delivery 5	Idle stop		
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
700	166,0-168,0 (163,0-171,0)	940-970*	-		100	20,0-21,0 mmRW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 PEN 10,

1. Edition

PE 6 P 110 A 320 RS 3109

RSV 200-750 P 4/421 R

supersedes

company Volvo-Penta TD 100 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(3,45-3,65)

mm (from BDERW 9,0-12,0 mm

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
speed rev/min 1	mm 2	cm-/100 strokes	cm ³ / 100 strokes 4	mm 2	cm//100 strokes 3	mm 6
700	12,8+0,1	17,1-17,3	0,4 (0,8)			
250	4,1-4,3	1,7-2,1	0,3 (0,6)			
					<u> </u>	<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

14	rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel riim	(2)	que control Control rod travel mm
1oose	800 x =	0,3-1,0 3,5	-	-		ca. 21	250 100	3,7 min. 19,0	-	. -
ca. 43	11,8 4,0 940	745-755 780-810 0,3-1,7					250 270-3	4,1-4,3 30=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

C	ill-load stop emp. 40°C (104°F)			iel delivery paracteristics			1dle stop	
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min	cm³/1000 strakes 5	rev/min	cm·/1000 strokes	rev/min 8	travel mm 9
700	171,0-173,0 (168,0-176,0)	745-755	-		100	20,0-21,0 mm RW	-	-
}								

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 PEN 10,0 e

1. Edition

Er

PE 6 P 110 A 320 RS 3109 Z

RSV 200-900 P 1/421

supersedes

company Volvo-Penta engine TMD 100 B

177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

3,5-3,6 (3,45-3,65)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
speed rev/min 1	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm/100 strokes	mm 6
700	12,0+0,1	16,1-16,3	0,4 (0,8)			
250	4,2-4,4	1,7-2,1	0,3 (0,6)			
						·
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	diate rate	d speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	11 3 3	rque control Control rod travel mm
loose	800 x =	0,3-1,0 4,0	•	<u>-</u>	-	ca. 19	250 250	3,7-3,9 4,2-4,4	-	-
ca. 46	11,0 4,0 1140	940-950 970-1000 0,3-1,7					270-33	30=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

روي	II-load stop	6 Rotational-speed limitat 3a Fuel delivery characteristics			Starting fuel delivery (5)			(4a) Idle stop	
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to changed to changed to changed to changed to change the change that the change	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
700	161,0-163,0 158,0-166,0)	940-950	-	-	100	20,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 VAL 3,3a

1. Edition

En

PES3A95D 320 RS 2655

RSV 325-1150 A 2 B 2178-1R

supersedes - Valmet company 311 DS 6

1 - 2 - 3 je 120 $^{\circ}$ $^{\pm}$ 0,5 $^{\circ}$ (\pm 0,75 $^{\circ}$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm ¹ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	10,0+0,1	8,3 - 8,5	0,3 (0,6)			_
325	7,1-7,3	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	er rated speed	I rev/min	Interme	diate rate	d speed	(4)		rated speed	1131	rque control
Degree of deflection of control lever		Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min	travel mm
-	800	0,3-1,0	1 -	· -	-	ca. 28	325	6,7	1150	10,0-10,1
loose	X = 6,	•						min.19,5	500 915	11,3-11,4
ca. 54	4,0	1190-1200 1290-1320 0,3 -1,7					325 650-710	7,1-7,3 = 2,0	913	10,0-10,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピツ	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting fi	uel delivery 5	I Control rod	
Test oil te rev/min 1	cm ³ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	1	travel mm 9
1150	82,5-84,5 (80,5-86,5)	1190-1200*	500	83,0-86,0 (81,0-88,0)	100	67,5-77,5 =12,0-12,6 mm RW	1	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. € 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

WPP 001/4 DAF 8,3i2 2. Edition

PE 6 A 90 D 410 RS 2524

RSV 250-900 A7B 2060 DL

supersed \$ 80 companyDAF

Test the manifold-preeure compensator and cold-start according by Service Information. Specifications apply to the service of to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,25-2,45) Port closing difference between control-rod travel 9 mm * 2,30-2,40 RW 9 and * max. = 4,5 - 5,5°.

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm:/100 strokes	cm ³ / 100 strokes 4	mm 2	cm ±100 strokes	mm 6
900	10,3+0,1	8,0-8,1	0,3(0,45)			
250	6,5~6,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	r rated speed	rev/min	Interme	ediate rat	ed speed	(4)				rque control Control rod
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	travel +0,1
loose	800 x :	0,3-1,0 = 4,0	-	-	-	ca.18	250 250	5,5	500 300	10,3 11,2
ca.53	940-950 945-970 1100=0	5=4,0					290-350			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2	ill-load stop	Rotational- speed limitat 3a Fuel delivery characteristics			Starting fuel delivery 5			da Idle stop		
Test oil to	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min 6	cm³/1000 strokes 7	rev/min	travel mm 9		
900	80, 5 - 81, 5 (78, 5 - 83, 5)	940-950*	-	-	100	19,5-21,0 mm RW **	-	-		
•						·		, constraint of the constraint		

Checking values in brackets

1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 8,3 i 3 4. Edition

Εn

PE 6 A 90 D 410 RS 2524

RSV 250-750 A 7 B 2124 L

supersede.82 company DAF engine DH, DU 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.30-2.40

mim (from BDC)

RW = 9.0 mm

	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
travei		5550	travel	i del delitery	(torque-control valve)
mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
2	3	4	2	3	6
9,4-9,5	7,7 - 7,9	0,4(0,55)			
6,3-6,5	1,8 - 2,4	0,2(0,4)			
	² 9,4-9,5	2 3 9,4-9,5 7,7-7,9	mm cm³/100 strokes 100 strokes 2 3 4 9,4-9,5 7,7-7,9 0,4(0,55	mm cm³/100 strokes 100 strokes mm 2 9,4-9,5 7,7-7,9 0,4(0,55)	mm cm³/100 strokes 100 strokes mm cm³/100 strokes 2 3 3 9,4-9,5 7,7-7,9 0,4(0,55)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings Port closing difference between control-rod travel 9 and max. = $3,0-4,0^{\circ}$.

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ced Control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm
100se	800 x = 770-73 795-8	0,3-1,0 3,25 30 = 8,4 15 = 4,0 3-1,7	-	-	-	ca. 16	250	6,4 min.19,0 ** 320=2,0 max. 1,0	700	9,4-9,5 9,4-9,7

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,
The number demonstrate tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	d stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp rev/min 1	. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
750	77,0 - 79,0 (75,0 - 81,0)	760-770*	••	-	100	19,5-21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 DAF 8,3 n 3. Edition

En

PE 6 A 95 D 410 RS 2575

RSV 250-750 A7B2124L

supersede2.82 company.DAF engine DH, DU 825

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9

and max. = $\bar{3}$,0-4,0°. All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump, Settings

Port closing at prestroke

mm (from BDC)

RW 9,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	12,5+0,	9,9 - 10,1	0,4(0,7)			
250	6,0-6,	2 0,7 - 1,3	0,2(0,4)			
					·	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper of Degree of deflection of control lever	rated speed	Control rod travel	Intermediate Degree of deflection of control lever	rated spe	Control rod travel	Degree of deflection of control lever	rated spe	ed Control rod travel mm		que control Control rod travel mm
 ,	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	750	12,5+0,
	x =	4,25					100 250	min.19,0 **	700	12,5+0,
£a. 40	11,5 4,0 955	770-780 795-815 0,3-1,7			d II mm cor		260- 380	max. 1,0	1	

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,

then 1/2 turn back.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor.

2 Full-loa	ad stop	6 Rotational- speed limitat.	Ga Fuel delivery characteristics		Starting Idle	fuel delivery	Sa) Idle	stop
Test oil temp rev/min	0. 40°C (104°F) cm ³ /1000 strokes	Nože: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	98,5 - 100,5 (96,5 - 102,5		-	-	100	19,5-21,0 mm RW	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8,8 b 1 4. Edition

supersedes 0.82

PES 6 P 120 A 320 RS 417

ROV 300-1150 PA 527 K

Values apply to engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

company: RVI engine: MIDS 062030 1 680 750 067

158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing mark 9.5° camshaft after port closing of cylinder 1.

Port closing at pres	troke	(2.75-2.95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	8,5-8,6	14,8-15,0	0,5(0,9)	<u> </u>		
600	2,7-2,8	1,3- 1,9	0,8(0,7)			
						,
	1					
	.}				<u> </u>	<u></u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-150 411

Upper rated s	peed		Intermediate	rated sp	eed	Lo	wer rated	speed		Sliding s	leeve travel
	rev/min Control	Control rod (19) travel	Degree of deflection		Control rod travel	de	egree of effection		Control rod travel		ı 🛈 🛚
of control	rod travel	mm rey/min (28)	of control lever	rev/min	mm (4	\ 1 .	control ver	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7		8	9	10	11
max.	1200	15,2-17,8	-	-	-	(ca.10		min.5,7 4,1-4,3		0,4-0,7 3,6-3,7
ca. 58	7,5 4,0	1205-1215 1275-1305				3	30-345			850 1150	5,1-5,2 7,5
	1409	0-1,0				(3	Sa)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	1 stop np. 40°C (104°F) 2	limitation intermediate speed	mediate speed		idle switchin		Torque- travel	Control 5 Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ^{-/1000} strokes	6	7	8	9
1150	147,5-149,5 (144,5-152,5		750 500	132,0-138,0 (129,0-141,0 80,0-86,0 (77,0-89,0	100 300	129,0-140,0 18,0- 24,0 229 (100)	350 750	8,5+0,1 7,0+0,4 7,7+0,2 7,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 3,8 84 1. Edition

PES 4A 90 D 410 RS 2294

RSV 350-1400 A0B 2006L

company Daimler-Benz OM 314 63 kW (85PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,10-2,30)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm+/100 strokes 3	mm 6
1380	10,4+0,1	6,4-6,5	0,3(0,45)			
350	9,2-9,4	2,4-3,0	0,2(0,4)			
		_		<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	1 3 1	rque control Control rod travel mm
loose	800 X=	0,3-1,0	-	-	-	ca.31	350 100 350	9,3 min.19,0 9,2-9,4	-	-
ca.62	9,4 4,0 1600	1420-1430 1490-1505 0,3- 1,7	1				510-57 650	0=2,0** max.1,0		

The humbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピツ	II-load stop	speed limitat	3a) Fu	el delivery aracteristics	Starting for	uel delivery 5	(40)	e stop Control rod
l i	emp 40°C (104°F) cm³/1000 strokes	Note changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		travel mm 9
1380	63,5-64,5 (61,5-66,5)	1420-1430*		-	100	14,7-15,3 mm R⅓	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Set idle-speed auxiliary spring at 2,0 mm control-rod travel,

10.82

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung.

1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.

Imprimé en République Fedérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4

4. Edition:

En

PES 6 A 85 D 320/3 RS 2339

RSV 350-1250 A 1 B 279 R

supersede 8.80 company Motori VM engine 106 SU, 956 SU

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

estoil-ISO 4113

Port closing at prestreke (2,95-3,15) 3,00-3,10 RW9

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-control valve)
rev/min	mm 2	cm+100 strokes 3	cm ¹ / 100 strokes 4	mm 2	cm/100 strokes 3	mm 6
750	9.7-9.8	5, 3 - 5, 4	0,3(0,45)]
350	7.3-7.5	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	rev/min	Interm	ediate rat	ed speed	(4)	Lower	rated speed	(3) '0	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever detlection in degrees 7	rev:min	Control red travel mm	revimin	Control rod travel mm
100se	800 x =	0,3-1,0				ca.16	350 100	5.5 min.19		
ca.58		300=8,7 330=4,0 ,3-1,7					350 500 405-465	5,9-6,1 max.1,0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Control rod travel
s rev/min 8	man 9
01250 500 FW400	9,7-9,8 9,7-9,9 0,8-11,
	500

Checking values in brackets

Port closing difference between control-rod travel 9 mm and max. = $6.0-7.0^{\circ}$.

11.82

* 1 mm less control rod travel than col. 2

• U → Geschaftsbereich KH Kundendienst Kfz-Ausrustung c 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1: Printed in the Federal Republic of Germany c 1980 by Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps 2 NPP 001/4 DAF 8,31 and Governors

3. Edition

estoil-ISO 4113

PE 6 A 90 D 410 RS 2524

RO 225/1200 AB 1008 L

DAF DH 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,30-2,40 RW9

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	crn ³ /100 strokes 3	mm 6
1000	9,4-9,3	7,0 - 7,1	0,3(0,45)			
225	6,5-6,7	0,9 - 1,5	0,2(0,4)			
					•	

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 mm B. Governor Settings and max. = $4.5 - 5.5^{\circ}$.

Checking	g of slider	Full-load s	peed re	gulation	_	ldie spes	ed regula	ition	1	Torque c	\sim
PRG che	ck Control rod travel	Setting po rev/min 3	Control	Test spec Control rod travel mm- 5	rev/min	Setting p rev/min 7	Control and travel and travel 8.		Control rod travel mm	rev/min	Control rod travel mm 12
650	19,2-20,8	650	20,0	, -	1245-1260 1325-1355	1	8,7	100	min.10,2	-	-
VH =	max. 46°			1500	0 - 1,0			225 410- 550	8,6 - 8,8 450=2.0 max. 1,0	1	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel delive	ry characteristics	Starting f	Centres
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes/f mm 7
1000	70,0 - 71,0 (68,0 - 73,0)	600	-	- .: .:	-	

Checking values in brackets

Test Specifications 2 Fuel Injection Pumps 2 and Governors

MAN

WPP 001/4 MAN 5,9 e1 1. Edition

PE 6 AM 70D 412 RS 1001

RQ 250/1275 AB 344 DL

supersedes company

Position "Diesel" = lever in contact

engine

Position "Gasoline" = lever not in contact

D 0026 M8A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,9-2,1)

Rotational speed	Control rod travel	Fuel délivery	Difference cm ² f	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3 .	4	2	\3	6
1275	12,0+0,	1 4,7-4,8	0,3(0,3)			,
250	7,9-8,	1 1,0-1,6	0,2(0,3)			
				1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin		Full-load : Setting po	•	•	cifications (4)	Idle spec	-		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm	rev/min 3	Control rod travel mm	Control rod travel mm	revimin 6	rev/min	rad travel rom 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0		1320-1335 1375-1405 0 - 1,0		6,0	250 365-4	min.7,5 5,9-6,1 05= 2,0 max. 1,0	600 860	12,0-12,1 12,9-13,0 12,8-13,0 12,2-12,5

Torque-control travel

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

rev/min cm³/-1000 strokes rev/min cm³/-1000		lelivery on control lever rnp. 40°C (104°F)	Control ro	d stop (3a)	Fuel deliv	ery characteristics	3 b)	Starting for	uel:delivery d
1275 46,5-47,5 - 700 49,0-52,0 100 19,0 - 21,0		1	12		rev/min	cm ³ /-1000 strokes 5		\ -	rad travel cm ³ /1000 strokes / mm 7
(57,5-63,5)	1275 "Gaso	46,5-47,5 (45,5-48,5)		-	700			100	

Checking values in brackets

8.82

BOSCH

Test Specifications Fuel Injection Pumps and Governors

WPP 0.01/4 KHD 1 g 1

2. Edition

En

PES3A85D410/3 RS 2642

RSV325-1150A8B2102-1L

1 - 3 - 2 je 120° $^{+}0,5$ ° ($^{+}0,75$ °)

supersedes

6.82 company KHD

F3L 913 engine

42 kW (57 PS<u>)</u>1

D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	2 .	cm ⁷ /100 strokes 3	4	2	3	6
700	11,8+0,	1 6,6-6,7	0,3 (0,4	5)		
325	8,9-9.	1 1,7-2,3	0,2 (0,4)		

Adjust the fuel delivery from each outlet according to the values in [11]

B. Governor Settings

Upper	rated Speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	re d	3 Tor	que control
Degree of deflection of control tever	rgy/min	Control rod travei	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/mi∩	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•	-	ca.20	325	8,5	1150	11,5+0,
**	X=						100 325	min.19,0 8,9-0,1 -545=2,0		11,8+0 11,6+0
⑤ ca.5	4 10,2 4,0 1350	1190-12 1265-12					403	343-2,0		

^{**} Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full to a	nd stop	6 Rotational- speed limitat		Fuel delivery characteristics		fuel delivery	(5a) Idle stop		
•	40°C (104°F) cm ³ /1006 strokes 2	Note changed to rev/min 3	rev/min	cm³/1000 strokes	rev/miñ 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm 9	
700	66,0-67,0 (64,0-69,0)	1190-1200	1150	70,5-73,5 (68,5-75,5)	100	133,5-143	5 -	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP 001/4 MB 5,7 r 4 3. Edition

Ĕ'n

PES 6 A 90 D 410 RS 2293 R

RSV 350-750 AOB 741 L

supersed 5.82

company Daimler-Benz engine OM 352 A

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	10,9+0,1	6,3 - 6,5	0,3(0,45	<u> </u>		
350	7,9-8,1	1,9 - 2,3	0,2(0,4)			
·						
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed	· · · · · · · · · · · · · · · · · · ·	Intermediate	rated spe	ed	4 Lower	rated spe	eed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 15	350	8,0	_	-
	x .	= 2,0						**		
ca.26	750 788-79 820	9,9 5 4,0 0,3-1,7								

•• Set auxiliary idle spring at 2.0 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting Idle	fuel delivery	5a Idle stop	
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm 9
700	63,0-65,0 (61,0-67,0)	750 *	-	•	100	78,0-88,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,213

2. Edition

PE 6 A 90 D 320 RS 2547

RSV 250-900 A7B 2061 R

supersede6.81
company DT 615, DF 615

Inlet pressure 1,5 bar!

PE 6 A 90 D 320 RS 2577

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,15-2,3

mm (from BDC)

RW 9 mm

En

•	of Closing at presi	,,,,,,	2,15-2,557				T
	Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	rev/min	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
	900	10,5+0,	8,5-8,6	0,3(0,45)			1
1	250	5,9-6,1	1,3 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in Port closing difference between control-rod travel 9 mm and max. = 2.5 - 3.5° camshaft.

B. Governor Settings

Upper	rated speed		ŧ.	Intermediate rated speed			rated spe	ed Control rod	3 Torque contr	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	travel mm	rev/min	travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	ca.19	250		650 370	10,5+0, 11,7+0,
	X =	4,0					250	5,9-6,1	370	11,770,
5a.53	9,5 4,0 1100	940-950 945-975 0,3 - 1,7					290-3	50=2,0mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.			Starting Idle	fuel delivery	(5a) Idle stop		
Test oil tem rev/min	p. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/miń 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7		Control rod travel mm 9	
900	85,0 - 86,0 (83,0 - 88,0)	940-950*	-	-	100	19,5-21,0 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 HOR 2,4 a

2. Edition

En

PES 3 A 80 D 410/3 RS 1336

RSV 400-1250 AOB 1123 L

supersedes2.82 company: Holder VD 6001-4 Tractor A 60

1 - 2 - 3 je $120^{\circ} + 0.5^{\circ} (+ 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

RW 9 mm

		(1,00 1,00)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1230	11,0+0,1	7,0-7,1	0,2(0,35			
400	7,9-8,1	0,9-1,5	0,2(0,3)			
i						

Adjust the fuel delivery from each outlet according to the values in ______.

Port closing difference between control-rod travel 9 mm and max. = $9-10^{\circ}$ camshaft.

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever		Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	***	-	ca.24	400	7,5	-	-
	X =	4,25					1	min.19,0 7,9-8,1		
ca. 48	10,0 4,0 1500	1270-1280 1335-1365 0,3-1,7					550~ 6	10=2,0mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	pad stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) Idle stop		
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm 9	
1230	70,0 - 71,0 (68,5 - 72,5)	1270-1280 *	-	-	100	19,5-21,0 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2 11,82

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP **001/4** SCL 7,4 b 1. Edition

En

PES 6 A 95 D 410 RS 2614

RSV 325-1100 A 1 B 2111 L

supersedes company Schlueter SDMT 110 W 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil - ISO 4113

(1,75-1,95) 1,80-1,90

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,4-7,6	0,9- 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Intermediate rated speed			Lower rated speed			3 Torque control	
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm 11 +0,1
1	2	3	4	5	6	<u> </u>	8	9	10	11 +0,1
100se	800	0,3-1,0				ca. 27	325	7,0	1100	12,6
	X =	5,0					100	min. 19	785	12,7
ca.61	122 0-1	150 =11,6 250 = 4,0 0,3-1,7					325 625	7,4-7,6	500	13,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

29	ill-load stop emp. 40°C (104°F)	Rotational- speed limitat	loai	nel delivery naracteristics	Starting f	uel delivery 5	da Idle stop	
ł	cm³/1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	l .	travel mm 9
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*	500	102, 5 - 105, 5 (100, 5 - 107, 5)	100	19-21 mm RW	325	7,5
		3			7),			·

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 KHD 8,8 a 2 1. Edition

Εn

PES 4 A 95 D 410 RS 2424

RSV 300-900 A7B 616 DL

supersedes TAM
company F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,70-1,90)

mm (from BDC RW 10,5

	Spring pre-te (torque-cont	delivery	Fuel	Control rod travel	Difference	Fuel delivery	Control rod	Rotational
	mm 6	100 strokes	cm ³ /	mm 2	cm ³ / 100 strokes 4	cm³/100 strokes 3	mm 2	speed rev/min 1
					0,3 (0,6)	7,6-7,8	8,8-8,9	900
					0,3 (0,5)	0,7-1,3	5,9-6,1	300
_						·		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed		Interm	ediate rati	ed speed	(4)	rque control			
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	travel mm
lever 1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	_	ca.27	300	5,5	900	8,8-8,9
	X =	5,5					100 300	min. 19, 5,9-6,1	600 400	9,4-9,6
ca.58	7,8 4,0 100	940-950 945-975 0,3-1,7					435-4 600			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

29	ill-load stop	6 Rotational- speed limitat		iet delivery naracteristics	Starting fi	uel delivery 5	4a) Idle stop		
Test oil to rev/min 1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to .) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	travel mm 9	
900	75,5-77,5	940-950*	-	-	100	115,0-125 = 12,5-13 mm RW	0 -	_	

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung c. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 f 1. Edition

PES 4 A 80 D 320 RS 2651

RSV 300-1075 A1B 2175 R

supersedes _

companyEicher engine: EDL 4-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 Port closing at prestroke (2, 1, -2, 3)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm 6
1	2	3			,	
1075	10,5+0,	1 6,2-6,3	0,2 (0,3			_
300	9,4-9,6	3,0-4,0	0,2 (0,3	P		
	}			1	·	
•						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rev/min	ed Control rod travel mm 9	3 Tor	que control Control rod travel mm
100se ca. 57	800 X = 9,5 4,0 1330	0,3-1,0 5,5 1115-1125 1165-1195 0,3-1,7	-	-	-	ca. 26		min 19,5 9,4-9,6	1075 500 825	10,5+0,1 11,3+0,1 10,8+0,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.	10101			(5a) Idle	e stop	
Test oil tem rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1075	62,0-63,0 (60,5-64,5)	1115-1125*	600	64,5-66,5 (63,0-68,0)	100	17,4-18,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MAN 11,1 g 2. Edition

PES 6 A 95 D 410 LS 2485

RQ 250/1100 AB965D

supersedes 2.76

company M A N

engine D 2566 M/MF (240 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,45-1.65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
tev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	11,7+0,	1 12,3-12,5	0,3(0,6)			
			2 2 (2 5)			
250	6,0-6,2	1,1-1,7	0,3(0,5)			
			Ì			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	of slider	Full-load	speed re	gulation		Idle spee	ed regula	ition		Torque control		
rev/min	Control rod travel	Setting por		Test spe	cifications Control rod travel mm	Setting property of the settin	Control rod travel mm	rev/min	cifications Control rod travel mm	rev/min	Control rod travel mm	
600	15,6-16,4	600	16,0	1140 1180 1220 1260	15,6-16,0 6,6-12,8 0 - 7	560	0	150 250 350 460	7,0-8,1 5,3-7,5 2,4-4,6	-	-	

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160(1140-1165)
Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever	Control rod stop	Fuel deliv	ery characteristics	Starting f	Starting fuel delivery				
Test oil tei	mp. 40°C (104°F) cm³/-1000 strokes 2	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min	cm³/100 Q rokes 7				
1100	123,0 - 125,0 (121,0 - 127,0)						500	113,5 - 118,5 (111,5 - 120,5)	100	108,5-116,5 = 12,6-13,0 mm RW

Checking values in brackets

11.82

BOSCH

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 14,6 n

2. Edition

<u>En</u>

PE 8 P 110 A 320 LS 3802

RQ 750 PA 374 R

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

supersedes 81

company Daimler-Benz
OM 420
engine 154 kW (209 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDC)

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fue! delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,9+0,	1 14,2 - 14,4	0,4(0,8)			
300	8,3-8,4	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	i	Full-load speed regulation Setting point Test specificati			Idle spee	oint		cifications	Torque control	
	Control rod travel mm 2	rev/min	Control rod travel rnm	rev/min 5	Control rod travel mm 6	rev/min	Control rod travel mm 8	rev/min	Control rod travel mm 10	rev/min	Control rod travel mm 12
-	-	-	-	12,9 6,1	750-755 780-790	-	-	-	- .	-	-
								·			

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor (delivery on control lever	Control rod stop	Fuel delive	ery characteristics	Starting f	uel delivery
Test oil tei rev/min	mp. 40°C (104°F) cm³/-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /100 strokes 7
700	142,0 - 144,0 (139,0 - 147,0)	-	-	-	100	130,0 - 150,0

Checking values in brackets

11.82

BOSCH

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MB 3,8 p 1 1. Edition

PES 4 A 90 D 410 RS 2294

RSV 750-1400 AOB 2032 DL

supersede. company Daimler-Benz OM 314 62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 Port closing at prestroke (2,10-2,30) mm

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1345	10,5 + 0,1	6,8-6,9	0,3(0,15)			
750	5,9-6,1	1,7-2,3	0,2 (0,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	ction travel travel mm rev/min		Intermediate rated speed 4 5 6		Control- lever deflection in degrees 7 rev/min mr		rated speed Control rod travel mm	3 To	rque control Control rod travel mm	
loose	800 x =	0,3-1,0 3,75	-	_	-	ca.30		6,0 min.19,0	450 600	12,2+0,2 10,5+0,2
ca.51	4,0 1	385-1390 435-1440 ,3 - 1,7					750 765-795 820	5,9-6,1 = 2,0 max. 1,0		·

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Fu	ii-load stop	6 Rotational speed (mitat	Rotational Speed (mitat Speed (mitat)			Starting fuel delivery 5 4a Idle stop				
Test oil to rev/min 1	cm ³ /1000 strokes	Note changed to) rev/min re 3		cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm		
1345	68,0-69,0 (66,0-71,0)	1385-1390*	-	-	100	73,0-83,0	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 3,8 p 1. Edition

PES 4 A 90 D 4 10 RS 2294

RSV 750-1400 AOB 2022 DL

supersedes Daimler-Benz engine OM 314 62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm *
1	2	3	4	2	3	6
1345	10,5+0,1	7,2-7,3	0,3(0,45)			
750	5,9-6,1	1,7-2,3	0,2(0,4)			
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	i rev/min	Interme	diate rated	d speed	4	Lower	3 Torque control		
Degree of deflection of control	deflection travel travel				Control- lever deflection in degrees	rev/min	Control rod travel mm	travel		
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	ca. 30	750	6,0	450	12,2+0,2
	X = 3,75						100 750	min. 19,0 5,9-6,1	600	10,5+0,2
ca. 51 2a	9,5 1385-1390 3,6 1435-1440 1500 0,3-1,7						765 - 795 820			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) F			onal- limitat 3a Fuel delivery			uel delivery 5	4a Idle stop	
Test oil (i rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm
1345	71,5-72,5 (69,5-74,5)	1385-1390*	-	-	100	85,0-92,0 = 14,3-14, mm RW	7	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps 1 WPP 001/4 MB 11,0 c 2 and Governors 1. Edition

PE 6 P 110 A 320 LS 3805

RQV 300-1150 PA 524-4

supersedes Daimler-Benz OM 421 engine 159 kW (216 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	4,0-4,1 (3.95-4.15)	mm (from BDC)	RW 9,0 -	12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
	2	3	4	2	3	6
1150	12,5+0,1	12,8 - 13,0	0,4 (0,8)			
300	7,7-7,9	1,2 - 1,8	0,4 (0,7)			•

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	ee d	Lower rated	speed	T		
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	Control rod travel rev/min mm 3	Sliding s	mm	
max.	1150	15,2-17,8	-	-	-	ca. 19	100 min. 10,0	250	1,0-1,2	
ca. 65	11,5 4,0 1400	1190-1200 1240-1270 0 - 1,0				330-730	300 8,3-8,5		3,4-3,7 4,9-5,3 7,7	
						3 a)	·			

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten	elivery d stop np. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics 5a	Starting Idle switching		Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1150	128,0-130,0 (125,0-133,0)	1190-1200*	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2 11.82

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 10 1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 780 L

781 L 925 L supersedes companDaimler-Benz

engine OM 352 96 kW (131 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25 Port closing at prestroke (2,10-2,30) mm (from BDC)

		(2,10-2,30)				•
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /10C strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			•
					·	
	·					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

.. 780 L, .. 781 L u. .. 925 L

ŀ	Upper ra	ited s	peed		Intermediate	rated sp	eed	Lower rated	speed		Cliding	leeve travel
	Degree of deflection of contro ever	n ol	rev/min Control rod travel mm 2	Control rod travel mm (2a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
	max.		1470 8,7 4,0 1700	15,2-17,8 1455-1465 1550-1580 0 - 1,0	-	-	-	ca.14 370-520	100 300 875	min.9,1 7,5-7,7 max.1,0		0,6-1,0 3,2-3,6 5,5-5,8 8,1
L								3a		:		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rod Test oil ten rev/min		Rotational-speed 2b limitation intermediate speed rev/min 4a			idle switchin		Torque- travel	Control root travel
1	2	3	4	5	6	7	8	9
1400	61,5 - 62,5 (59,5-64,5)	1455 - 1465*	-	-	100	71,0-8,10 = 13,9-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 n 9 2 Edition

En

PES 4 A 90 D 410 RS 2570

RQV 300-1400 AB 1111-3L

supersedes 82

companyDaimler-Benz

engine: OM 314

57 kW (77 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Control rod	(2,20-2,40) Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
10,5+0,1	5,9 - 6,0	0,3(0,45			
8,3-8,5	0,9 - 1,5	0,2(0,4)			
:					
	mm 2 10,5+0,1	Control rod travel mm cm³/100 strokes 2 3 10,5+0,1 5,9 - 6,0	Control rod travel mm cm³/100 strokes 2 10,5+0,1 5,9 - 6,0 Difference cm³/100 strokes 4 0,3(0,45)	Control rod travel mm cm³/100 strokes 3 10,5+0,1 5,9 - 6,0 Difference cm³/100 strokes 4 2 0,3(0,45)	Control rod travel mm cm³/100 strokes 2 10,5+0,1 5,9 - 6,0 Difference Control rod travel mm cm³/100 strokes 4 0,3(0,45) Control rod travel mm cm³/100 strokes 2 0,3(0,45)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed	•	Stiding s	leeve travel
Degree of deflection of control	rev/min Control	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel		1
lever	rod travel mm	rev/min 2a	lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	_	-	-	ca. 24		min.10,0		0,7-0,9
ca.63	9,5 4,0 1650	1440-1450 1535-1565 0 - 1,0					i	8,3 - 8,5 605 = 2,0	_	4,8-4,9 5,3-5,4 7,7
						3a				

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel deli- high idle s	very characteristics 5a	Starting Idle switchir		Torque travel	Control roo
rev/min	crh³/1000 strokes .	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	71,0-81,0	400 600	10,5+0, 11,4+0, 11,1+0, 10,8+0,
					22	20 (240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 z

Εn

PES 6 A 90 D 410 RS 2293

RSV 750-1500 A 2 B 2156 L

supersedes_

company: Daimler-Benz

engine OM 352

45 kW (61 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.10-2.30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1450	6,8-6,9	3,5 - 3,6	0,3 (0,45)		
750	4,1-4,3	0,2 - 0,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
lever	rev/min	lmm	lever	rev/min	mm	lever	rev/min	mm	rev/m:n	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	ca.30	750	4,2	_	-
	x =						765-7	95 = 2,0		
ca.56	5,8 4,0 1575	1495-1500 1522-1543 0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	Sa Idle stop		
Test oil temp rev/min 1	. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm	
1450	34,5-35,5 (32,5-37,5	1495-1500*	_	-	100	58,0-68,0	_	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11,4 p 1. Edition

PES 6 P 100 A 820 LS 351

RQ 300/950 PA 483 R

company: Daimler-Benz

OM 407 H

162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
950	13.4+0.1	12,5-12,7	0,3(0,6)			
300	8,0-8,2	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

rev/min travel mm 2 rev/min 3 rev/min 3	rod travel mm 4	5 12,4	rev/min 6 995-1010	rev/min 7	Control red travel rnm 8	9	Control rod travel mm 10	rev/min	Control rod travel mm
600 13,8-14,6 600	14,2	- 1		300	8,1	100	nin. 10.1		-
		4,0 1200	1020-1050 0 - 1,0		Ţ	300	8,0-8,2 10 = 2,0		

Torque-control travel on flyweight assembly dimension a

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	letivery on control lever np 40°C (104°F)	Control rod stop Gain Fuel delivery characteristics			/OL \	C apaca		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min	Contra- rad travel cm ³ /1000 strokes:/ mm 7	
950	125,0-127,0 (123,0-129,0)	600	-	-		100	135,0-155,0	

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 h 3 1. Edition

En

PE 8 P 120 A 320 LS 3807

RQ 750 PA 374 R

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} + 0.5^{\circ} (+0.75^{\circ})$

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

supersedes -

company: Daimler-Benz

engine: OM 422 A

196 kW (266 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0 - 4,1 (3.95-4.15)

mm (from BDCZy1. 8

		(3,95-4,15)		yı. o		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	17,8 - 18,0	0,5 (0,9	b		
300	5,0-5,2	1,2 - 1,8	0,8 (1,2	•		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	1	Full-load s		_	cifications (4)	Idle spec				Torque o	Torque control		
rev/min	Control rod travel mm 2		rev/min 3	Control rod travel mm	Control rad travel mm 5	rev/min 6	rev/min 7	Control red travel		Control rod travel mm	rev/min	Control rod travel		
-	-		•	-		750-755 785-795	•	-	-	-	•	-		

Torque-control travel on flyweight assembly dimension a =

mn

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting i	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min .	cm ³ /-1000 strokes	rev/min	Control rad travel cm ³ /1000 strokes / mm
700	178,0-180,0 (175,0-183,0)	-		-	100	200,0-210,0

Checking values in brackets

10.82

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28

2

Test Specifications Fuel Injection Pumps 2 a: d Governors

40

WPP 001/4 MAN 9,2 n1 1. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/1050 AB 1042 DL

supersedes-

1 - 3 - 5 - 4 - 2 je $72^{\circ} \pm 0.5^{\circ} (-0.75^{\circ})$

company: MAN engine: D 2565 M/MR/MFR

121 kW (165 PS)

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,45-1,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	10,0+0,1	9,2-9,4	0,3(0,6)			
250	6,6+0,2	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	(1)	Full-load s			cifications (4)	Idle spec			cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm	rev/min 3	Control red travel mm 4	Control rad travel mm 5	rev/min 6	rev/min 7	Control rod travel	rev/min 9	Control rod travel	rev/min	Control rod travel
600	15,6-16,4	600	16,0		1095-1110 1140-1170 0 - 1,0	250	6,7	100 250 370- 500	min. 8,2 6,6-6,8 410 = 2,0 max. 1,0	910 800	10,0-10,1 10,1-10,4 10,5-10,7 10,8-10,9

Torque-control travel on flyweight assembly dimension a =

mm

1095-1110 min⁻¹ Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics		i .a.a abcca					
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	- 1	rev/min 6	Contra red travel cm ³ /1000 strokes/mm 7				
1050	91,5-93,5 (89,5-95,5)	-	700	86,5-89,5 (84,5-91,5)		100	146,5-156,5 16,0-16,8				
			500	max. 88,5 (max. 90,5)			mm RW				

Checking values in brackets

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF11,6 t 4. Edition

PE 6 P 100 A 320 RS 384

RQ 225/1000 PA 571

supersedes 8.81

company: DAF

DKDL 1160 engine:

125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

1 - 5 - 3 - 6 - 2 - 4 je $60^{\circ} + 0.5^{\circ} (+0.75^{\circ})$

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
600	11,4+0	1 9,80 - 10,00	0,3(0,6)			
250	7,57,7	0,90 - 1,30	0,3(0,5)			
1000	10,6+0,	C.Sp. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load s	peed re	gulation		idle spec	_			Torque o	_
PRG che	ck 1	Setting po	int	Test spec	cifications (4)	Setting p	oint	Test spe	cifications (5)		(3)
rev/min	Control rod travel mm 2	rev/min 3	Control red travel rnm 4	Control red travel mm 5	rev/min	rev/min 7	Control rod travel rom 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
550	15,6-16,4	550	16,0	9,7 4,0 1250	1100-113	ф	7,6	250	min. 8,4 7,5-7,7 385 =2,0		10, 610,8 11,4-11, 11,2-11, 10,8-11,

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	letivery on control lever mp 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for spee	d Control
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
600	98,0 - 100,0 (96,0 - 102,0)	600	1000	93,0 - 95,0 (91,0 - 97,0)	100	170,0 - 210,0 19,5-21,0 mm RW
					250	9,0-13,0
						•

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 9,2 a 2 2. Edition

En

PES 5 A 95 D 410 LS 2426

RQ 250/1150 AB 839 L

supersede 6.82 company MAN

1 - 3 - 5 - 4 - 2 je $72^{\circ} - 0,5^{\circ} (-0,75^{\circ})$

engine D 2555 MX/MXF 141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,25-1,45)

mm (from BDC)

	(.	1,25-1,45)			_	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,	11,5 - 11,7	0,3(0,6)			
250	6,4-6,6	0,9 - 1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck (1)	Full-load s Setting po	-	•	ifications (4)	Idle spec	_		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm	rev/min 3	Centrel red travel mm 4	Central red travel FORTO 5	rev/min 6	rev/min 7	Control rod travel	rev/min 9	Control rod	rev/min	travel
600	15,6-16,3	600	16,0		1195-1210 1255-1285		6,5	100 250 370-	min.7,9 6,4-6,6 410=2,0	600 935	11,2-11,3 11,6-11,7 11,4-11,6 11,2-11,5

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for	uel delivery d Contra
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	nd trad cm ³ /1000 strokes:/ mm 7
1150	114.,5-116,5 (112,5-118,5)	250	800	115,0-118,0 (113,0-120,0)	100	146,5-156,5
			500	max. 116,5 (max. 118,5)		

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 9,2 i 1 2. Edition

En

PES 5 A 95 D 410 LS 2543 y RQ 250/1100 AB 1039 DL

1 - 3 - 5 - 4 - 2 je 72° ± 0.5° (± 0.75°)

supersedes 81 MAN

compan

engine D 2565 M/MF (0)

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45 - 1.65)

mm (from BDC

Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11.0+0.1	9,3-9,5	0,3(0,6)			
250	6,8-7,0	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of stider	Full-load	speed re	gulation	_	Idle spec	ed regula	ition		Torque o	control
PRG che	ck (1)	Setting po	pint	Test spec	cifications (4)	Setting p	point	Test spe	cifications (5)		(3)
rev/min 1	Control rod travel mm	rev/min 3	Centrel red travel rmm 4	Control rod travel men 5	rev/min	rev/min 7	Control red travel rrsm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm
600	15,6-16,4	600	16,0	9,2	1145-1160	250	6,9	100	min. 8,4	1100	10,2-10,4
				4,0	1180-1210			250	6,8-7,0	700	11,0-11,1
				1300	0-1,0			410-4	70=2,0	500	11,0-11,2
	L										
Torque-c	ontrol travel		0,4				Ţ	145-1	חוש טסו	•	1 mm less control

on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever op. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery d Contra
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes:/ mm
700	92,5-94,5 (90,5-96,5)	-	1100 500	94,5-98,5 (92,5-100,5) 90,5-94,5 (88,5-96,5)	100	146,5-156,5 bei 17,1-17,5 mm Rd

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

MAN

WPP 001/4 MAN 11,1p13
1. Edition

<u>En</u>

PES 6 A 95 D 410 LS 2542 Z

RO 250/1100 AB 965 DL

supersedes

company:

engine:

D2566 MUH/MUM

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45-1.65)

mm (from BDC)bei RW= 9,0-12,0

Rotational speed rev/min	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
750	12,7+0,1	12,0-12,2	0,3(0,6)			
250	7,0-7,2	0,9- 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

_	g of slider	Full-load s	•	-		idle spec				Torque o	
PRG che	Control rod	Setting por rev/min 3	int Control not travel mm 4	Test spec Control red travel rnm 5	rev/min	Ï	Control red travel mm	rev/min 9	cifications (5) Control rod travel mm	rev/min 11	Control rod travel mm
600	15,6-16,4	600	16,0	1	1145-1160 1205-1235	1	7,1	250 380-4	min.8,6 7,0-7,2 20=2,0 max. 1,0	-	-

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160 min -1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Controt rod stop 3a	Fuel delive	ery characteristics 3b	Starting f	tuel delivery 6
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min	red travel cm ³ /1000 strokes/mm 7
750	119,5-121,5 (117,5-123,5)	-	1100	128,5-131,5 (126,5-133,5)	100	121,5-131,5 bei 14,6-15,0
	,,		500	117,5-121,5 (115,5-123,5)		mm RW

Checking values in brackets

10.82

BOSCH

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,1p14 1. Edition

En

PES 6 A 95 D 410 LS 2542

RQ 250/1100 AB 965 DL

supersedes

company:

engine D2566 M/MF

MAN

177 kW (240PS)

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12.0+0.1	12.5-12.7	0,3(0,6)			
250	6,5-6,7	0,8- 1,4	0,3(0,5)			
		·		·		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load s	•	-	cifications (4)	idle spec Setting p	_		cifications (5)	Torque o	ontrol (3)
rev/min	Control rod travel mm	rev/min 3		Castral red travel rnm 5	rev/min 6	rev/min 7	Central red Stavel rmm 8		Control rod travel mm 10	rev/min 11	Control rod travel mm
600	15,6-16,4	600	16,0		1145-1160 1185-1215 0- 1,0		6,0	250 360-4	min.7,5 5,9-6,1 00=2,0 max. 1,0	-	-

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation 1145-1160 min -1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever pp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics (3b)	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	mid travel cm ³ /1000 strokes/mm 7	
1100	124,5-126,5 (122,5-128,5)	-	750	110,5-113,5 (108,5-115,5)	100	121,5-131,5 bei 14,4-15,0	
			500	107,5-113,5 (105,5-115,5)		mm RW	

Checking values in brackets

Test Specifications Fuel Injection Pumps 2 and Governors

40

MAN

WPP 001/4 MAN 11,1p15 1.Edition

En

PES 6 A 95 D 410 LS 2541

RQ 250/1050AB894 DL

supersedes "

company:

D2566 MUH

engine

141kW(192PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

(1.45-1.65)

mm (from BDC)

		, 45 1,007		_		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	11,3±0,1	10,1-10,5	0,3(0,6)			
250	5,9-6,1	0,8-1,4	0,3(0,5)			
					 	·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-foad : Setting po	•	-		Idle speed regulation Setting point Test specifications Control rod				·		
rev/min	travel	rev/min 3	red travel mm		rev/min 6	rev/min 7	red travel	rev/min 9	travel	rev/min 11	Control rod travel mm 12	
600	15,6-16,4	600	16,0		1095-1110 1145-1175 0- 1,0	250	6,0	250	min.7,5 5,9-6,1 400=2,0 max.1,0	600 800	11,2-11,4 11,8-11,9 11,7-11,9 11,4-11,6	

Torque-control travel on flyweight assembly dimension a =

0,3 _{mm}

Speed regulation: At 1095-1110 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever ip. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics [3b]	Starting f	ruel delivery
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Centre rad travel cm ³ /1000 strokes:/ mm
1050	100,5-104,5	-	700	104,5-108,5	100	125,0-135,0
	(98,5-106,5)		·	(102,5-110,5)		bei 14,2-14,8 mm RW
			500	max.103,5 (max.105,5)		

Checking values in brackets

Testoil-ISO 411

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11,0 c 1 3. Edition

PE 6 P 110 A 320 LS 3805

RQ 300/1150 PA 187-6

supersede7.81 company:Daimler-Benz

engine: OM 421

159 kW (216 PS)

1- 6- 3 - 5 - 2 - 4 0-75-120-195-240-315 ° + 0,50° (+ 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 4,0-4,1

Port closing at prestroke

mm (from BDG)W 9,0-12,0 mm

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
12,5+0,1	12,8-13,0	0,4(0,8)			
7,7-7,9	1,2-1,8	0,4(0,7)			
	mm 2 12,5+0,1	travel mm cm³/100 strokes 2 3 12,5+0,1 12,8-13,0	travel mm cm³/100 strokes 2 3 4 12,5+0,1 12,8-13,0 0,4(0,8)	travel cm³/100 strokes cm³/ 100 strokes cm³/ 100 strokes mm 2 2 12,5+0,1 12,8-13,0 0,4(0,8)	travel travel travel travel travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-load s Setting po		_	cifications (4)	idle spec	_		cifications (5)	Torque o	control (3
rev/min	Control rod travet mm 2	rev/min 3	Control rad travel mm 4	Control rad Travel rnm 5	rev/min 6	rev/min 7	Control red travel rnm 8	rev/min 9	Control rod travel	rev/min 11	Control rod Control
650	13,2-14,0	650	13,6	11,5 4,0	1195-1210 1240-1270	300	7,1	100 300 400-	min.8,5 7,0-7,2 440=2,0	-	-

Torque-control travel on flyweight assembly dimension a

1195-1210 min⁻¹ Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	2 Control rod stop	(3a) Fuel delive	ery characteristics	Starting f	uel delivery 6
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	red travel cm ³ /1000 strokes/mm
1150	128,0-130,0 (125,0-133,0)		600	120,0-124,0 (117,0-127,0)	100	130,0-150,7

Checking values in brackets

2

Test Specifications Fuel Injection Pumps 2 and Governors

40 WPP 001/4 KHD 8,8 a 3

1. Edition

En

PES 4 A 95 D 410 RS 2424

RQ 275/1200 AB 865 DL

supersedes *

company. TAM

engine: F4L413R

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,70-1,90)

mm (from BDC) RW 10.5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1200	9,0-9,1	7,6-7,8	0,3 (0,6)			
275	5,9-6,1	0,7-1,3	0,3 (0,5)			
		1		}		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG check Control rod rev/min 1		g of slider	Full-load s	•					Torque o	control		
Control rod Control rod	PRG che	- · · · · · · · · · · · · · · · · · · ·	Setting po		Test spec	cifications (4)	Setting p	oint	Test spe	cifications (5)		(3)
600 15,6-16,4 600 16,0 8,0 1245-1260 275 6,0 100 min. 7,5 1200 9,0-9,1 4,0 1300-1330 275 5,9-6,1 950 9,2-9,5 1450 0-1,0 370-410 = 2,0 700 9,6-9,7		travel	rev/min	red travel	red travel	rev/min	rev/min	red travel mm		travel mm	l	travel mm
4,0 1300-1330 275 5,9-6,1 950 9,2-9,5 1450 0-1,0 370-410 = 2,0 700 9,6-9,7	<u>'</u>		3	-	3	0	/	8	9	10	11	12
	600	15,6-16,4	600	16,0	4,0	1300-1330		6,0	275 370-	5,9 - 6,1 410 = 2,0	950	9,2-9,5

Torque-control travel on flyweight assembly dimension a

mr

1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	2	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed Control		
rev/min 1	cm³/-1000 strokes		rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	rad travel cm ³ /1000 strokes:/ mm 7	
1200	75,5-77,5 (73,5-79,5)		700	1000 700	74,5-77,5 (72,5-79,5) 75,5-79,5 (73,5-81,5)		100	115,0-125,0 = 13,7-14,3	

Checking values in brackets

11.82

BOSCH

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 DAF 11,6 m

3. Edition

En

oil-ISO 4113

PE 6 P 100 A 320 RS 384

RQ 225/1100 PA 450/2 DR

supersedes 10.80 DAF

1 - 5 - 3 - 6 - 2 - 4 0 -60 -120-180-240-300° (company DKL 1160 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.15-3.35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,9-12,	0 11,4 - 11,6	0,3(0,6)			
225	7,3-7,5	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	.1	Setting point Test specifications (4)			Idle speed regulation Setting point Test specifications (5)						
rev/min	Control rod travel mm	rev/min	Control red travel mm	Control red travel rnm	rev/min	rev/min		rev/min	Control rod travel mm	rev/min	travel	
550	15,6-16,4	550	16,0	10,1	1145-106	225	-	-	min.7,6	1050 600	11,1-11,2 11,9-12,0	
1300	0,3-1,0			4,0	1175-120			225 3 25-3	7,3-7,5 65 =2,0		11,7-11,9 11,1-11,4	

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics (3b)	Starting for speed	uel delivery d Cantra
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	red travel cm³/1000 strokes ∤ mm 7
600	114,0 - 116,0 (112,0 - 118,0)	-	1050	105,0 - 108,0 (103,0 - 110,0)	100	195,0 - 235,0 19,5-21,0 mm RW
					225	9,0 - 13,0

Checking values in brackets

11.82

B18

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 10,0 9

1. Edition

PE 6 P 110 A 320 RS 310 8 y

ROV 250-1100 PA 649.

supersedes company 0 l vo engine: THD 100 EC 180 kW (245 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2.95-3.15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 250	11.1+0.1 5.0-5.2	i	0,4 (0,8) 0,3 (0.6)			2,4-2,6 (2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	laeve travel
deflection	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection of control		Control rod travel		①
of control lever	rod travel mm	rev/min 2a	of control lever	rev/min	mm 4	lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1175	15.2-17,8	-	-	-	ca.12	100	min.6,7		0,6-0,8
ca.59	10.1 4.0 1350	1140-1150 1205-1235 0 - 1,0					250 345-4	5,0-5,2 05 = 2,0	660	4,2-4,8 6,4-6,5
						3a			100	7,3

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed	Fuel deliv high idle s	very characteristics (5a)	Starting Idle switchir		Torque- travel	Control 5
rev/min	cm³/1000 strokes .	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0.75 bar 137.0-139.0 (134.0-142.0)	1140-1150*	LDA 700	0 bar 105.0-107.0 (102.0-110.0)	180	170,0-200,0 = 20.0 - 21,0 mm RW	-	-

Checking values in brackets

1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6PRS3108y	0,30		10,5 - 10,6
+ RQVPA649		0,75	11,1 - 11,2
		0	9,6 - 9,8
		0,22	10,0 - 10,2
			,

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications
Fuel Injection Pumps ②
and Governors

40

WPP 001/4 STE 12,0 b

1. Edition

En

PE 8 P 110 A 121 LS 3113

RQ 300-1100 PA 646

1-5-4-8-6-3-7-2 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

supersedes :

company STEYR WD815.64

240 kW (326 PS)

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at prestroke

(2,75-2.95)

mm (from BDC)

	, _ ,					
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strckes 3	Spring pre-tensioning (torque-control valve) : mm
1100	12.0+0	1 15.8-16.0	0,4(0,8)			
300	6,1-6,3	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Checking of slider PRG check Control rod		Full-load speed regulation Setting point Test specifications Control		Idle speed regulation Setting point Test specifications Control Contro				Torque control Control rod		
rev/min	travel mm 2	1	nd travel mm 4	rad travel	rev/min 6	rev/min 7	rod travel	rev/min 9	travel	rev/min	travel
600	15,6-16,4	600	16,0		1135-1150 1200-1230 0 - 1,0		6,2	100 300 400	min.7,7 6,1-6,3 460=2,0	-	-

Torque-control travel on flyweight assembly dimension a =

пm

1135-1150 min Speed regulation: At 1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop [3a] Fuel delivery characteristics			<u>3</u> b	Starting fuel delivery Idle speed Control		
rëv/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes / mm 7	
1100	0,9 bar 158,0-160,0 (155,0-163,0)	-	LDA 500	0 bar 111,0-113,0 (108,0-116,0)		100	240,0-280,0	

Checking values in brackets

Test atn =

500

rey/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8PLS3113	0,55		11,5-11,7
+PA646		0,90 0 0,48	12,0-12,1 9,7- 9,8 10,9-11,1

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 8,3 1 2

1. Edition

PE 6 P 100 A 720 RS 373-1

RQ 250/1200 PA 464 R

supersedes

company: DAF

DHU 825 engine

169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,0 12 45-2.65)

mm (from BDC) RW 9.0 - 12.0 mm

		2,43-2,03)	THE CHOILD FAILE	KW 9,0 -	12,0 11111	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3±0,1	12,8-13,0	0,3 (0,6			
250	7,2-7,4	0,8-1,2	0,3 (0,5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider Full-load spee PRG check 1 Setting point			-	cifications (4)	Idle spec	_		cifications (5)	Torque control		
rev/min	Control rod travel mm 2	rev/min 3	Control red travel mm 4	Control rad travel mm 5	rev/min 6	rev/min 7	Control rod travel rnm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel
700	15,6-16,4	700	16,0		1245-1260 1320-1350 0-1,0		7,3	250	min. 8,4 7,2-7,4 10=2,0	1000 700	12,3-12,4 12,3-12,5

Torque-control travel on flyweight assembly dimension a

1245-1260 min-1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	ery characteristics) i o o speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes:/ mm	
LDA 1000	0,7 bar 127,5-129,5 (125,5-131,5)	-	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0 =19,5-21,0 mm RW	

Checking values in brackets

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel - difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 373-1 + RQPA 464 R	0,34	0,70 0 0,30	12,0-12,1 12,3-12,4 11,2-11,3 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 10,0 o1

1. Edition

En

PE 6 P 110 A 320 RS 3080

RQV 250-1025 PA 589

supersedes

company: Volvo

engine: TD 100 GA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.45-3.65)

Testoil-ISO 4113

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	2,0+0,1	16,2-16,4	0,4 (0,8			
250	9,7-9,9	1,6- 2,0	0,3 (0,6			-

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed	, <u>, , , , , , , , , , , , , , , , , , </u>	6.4	Sliding sleeve travel	
deflection of control	rev/min Control rod travel	Control rod te travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel			
lever	mm	rev/min (28)	lever	rev/min	mm (4)		rev/min	mm (3)	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	1080	15,2-17,8	-	-	-	ca. 8	100	min 5,6	200	0,7-0,9	
							250	4,0-4,2	475	3,9-4,5	
ca. 63	11,0	1065-1075			į	Į	1	ļ	660		
	4,0	1120-1150				į	305-3	65 = 2,0	bis	6,4-6,6	
								·	745		
	1250	0 - 1,0							025	7,5	
						3a				,-	

Torque control travel a = _

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) limitation intermediate speed	Fuel deln high idle :	very characteristics 58	idle	fuel delivery 6	Torque- travei	control 5	
rev/min 1	cfh³/1000 strokes .	rev/min 4a	rev/man	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm.	
LDA 700	0,7 bar 162,0-164,0 (159,0-167,0		LDA 700	0 bar 120,0-124,0 (117,0-127,0)	100	170,0-200,0 = 20,0-21,0 mm RW	-	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Sefting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS 3080	0,44	_	11,4-11,6
+ RQVPA589		0,75 0 0,25	12,0-12,1 9,7- 9,9 10,2-10,3

Notes

(1) when n =

rev/min and gauge pressure =

0

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 10.0 K

2. Edition

En

PE 6 P 110 A 320 RS 389 RQV

ROV 250-1100 PA 459 R

supersedes0 • 79
company VOT VO
engine TD 100C
(189,0kW-257PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4-12,	13, 10 - 13, 30	0,4(0,8)			
250	4,7-4,8	1,10 - 1,50	0,3(0,6)			
				ť		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed		Stations	leave travel
	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Sliding sleeve travel 1 rev/min mm	
1	2	3	4	5	6	7	8	9	10	11
max.	1170	15,2-17,8				ca. 9	100 250	min.6,5 4,7-4,9	500	0,5-0,7 2,7-3,1 4,9-5,2
ca.45	11,4 4,0 1350	1140-1150 1230-1260 0,3-1,0				<u>3a</u>	300-	360 = 2,0	1100	7.7

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		intermediate speed sw		Starting fuel delivery 6 idle switching point rev/min cm³/1000 strokes		Torque- travel	Control od travel	
LDA 700	0,5 bar 131,0-133,0 (128,0-136,0)	1140-1150*	700	108,0 - 112,0 (105,0 - 115,0)	180,0-220,0 170(80-190)	8	9

Checking values in brackets

1 mm less control rod travel than col. 2

Test at n =

500

 $\begin{array}{c} \text{decreasing} \\ \text{increasing} \end{array} \text{pressure - in bar gauge pressure} \\ \end{array}$

Pump/governor .	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = b	Gauge pressure = bar	mm (1)
389 + 459R	0,36	0,50 0 0,23	12,2 - 12,3 12,4 - 12,5 11,2 - 11,3 11,5 - 11,7

Notes

(1) when n -

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VAU 5,4 a

1. Edition

PES 6 A 95 D 320 RS 2646

RQV 300-1300 AB 1163 R

supersedes

companyVauxha11

Please note instructions on sheet 2.

engine: 330 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5 - 2,6 (2,45-2,65) Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ i 00 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	9,7-9,8	6,4 - 6,6	0,3(0,6)			
300	5,9-6,1	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Cliding	leeve travel
deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	J	1
lever 1	mm 2	rev/min (2a)	lever 4	rev/min 5	mm (4)	lever	rev/min 8	mm (3)	rev/min 10	mm 11
max.	1425	15,2-17,8	-	-	-	ca. 12	100	min. 7,4		0,4-0,7
ca.63	8,7 4,0 1550	1340-1350 1440-1470 0 - 1,0					300 305-4	5,9-6,1 00		4,1-4,4 5,6-5,7 7,7
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	intermediate speed			Starting Idle switching	• 0	Torque- travel	Control control root
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
800	63,5-65,5 (61,5-67,5)	1340-1350*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)	100	86,5 - 96,9 19,5-21, mm RW	- 0	-

Checking values in brackets

 ¹ mm less control rod travel than col. 2

Instructions on fitting and testing

- 1. Clamp the pump onto the test bench without the governor fitted.
- 2. Set the plunger lift to port closing.
- 3. Turn the camshaft until cylinder 1 is at port closing.
- 4. Fit the flyweight assembly onto the camshaft so that the fastening bolt of the flyweight assembly with the marking on the front points towards the index plate in the hole in the governor housing. Fit the governor ready.
- 5. In this position, a mark, coinciding with that on the front of the fastening bolt for the governor flyweight assembly, is drawn on the index plate.

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 PEN 7,0 b 1

1. Edition

En

PE 6 P 110 A 320 RS 260X

RSV 250-1250 PO/374/2R

supersedes -

company Volvo-Penta TAMD 70 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ^{-y} 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
1000	10,5+0,1	12,0-12,2	0,4(0,8)			
250	5,9-6,1	1,1- 1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	er rated speed		Interme	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	T I Travel I travel					Control- lever		Control rod travel		Control rod travel
lever	2	3	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	_	ca.19	250	5.5	-	
	X =	5,75]				100	min.20,0		
ca.49	4,0 1	290-1300 340-1370 0,3-1,7					250 455-5	5,9-6,1 15 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	11.361	el delivery aractenstics	Starting f	Starting fuel delivery (5) (4a) Idle stop			
Test oil to rev/min 1	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strakes 5	rev/min	cm³/1000 strokes 7 - €	rev/min 8	Control rod travel mm	
LDA 1000	1,1 bar 120,0-122,0 (117,0-127,0)	1290-1300*	LDA 700	0 bar 85,0-88,0 (82,0-91,0)	100	160,0-20(=20,0-21,0 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 260 X +PO/374/2R	0,90	1,10 0 0,55	10,4 - 10,5 10,5 - 10,6 8,7 - 8,8 8,8 - 9,1

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DEE 10,1 a

1. Edition

En

PES 6 P 110 A 720 RS 370

US-RSV 400-1050 P0/495

supersed€s

company

engine

John Deere 6619 A

205 kW (279 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,75-2,85

(2,70-2,90)

Port closing at prestroke

restoil-ISO 4113

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm (2)	cm /100 strokes	cm:/ 100 strokes	mm	cm/100 strokes	mm
2	3	14	2	3	6
12,5+0,1	17,8-18,0	0,4 (0,8)			
6,0-6,1	1,3-1,9	0,4 (0,7)			
	travel mm 2 12,5+0,1	travel mm 2 cm 1/100 strokes 3 12,5+0,1 17,8-18,0	travel mm 2 cm 1/100 strokes 2 cm 1/100 strokes 4 12,5+0,1 17,8-18,0 0,4 (0,8)	travel mm 2 cm /100 strokes 100 strokes 4 12,5+0,1 17,8-18,0 0,4 (0,8)	travel mm 2 cm 100 strokes 100 strokes 2 12,5+0,1 17,8-18,0 0,4 (0,8)

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	rev/min	Intermed	diate rated	speed	4	Lower	rated speed	(3)	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control	mm	mm rev/min				deflection in degrees	rev/min	mm ,	rev/min	шш
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.16	400	5,5	1050	12,5-12,6
· .	X =						100	min.19,0	700	13,7-14,0
¢a.38,5	11,5	1090-1100					400 570-630	5,9-6,1 = 2,0	500	9,3-9,5
(2a)	4,0 1280	1155-1185					650	max. 1,0		
	1200	0,3-1,7				L	l	<u> </u>	<u> </u>	L

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	II-load stop	Rotational-speed limitat 3a Fuel delivery characteristics			Starting f	uel delivery 5	4a Idle stop		
Test oil te rev/min 1	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1050	1,2 bar 178,0-180,0 (175,0-183,0)	1090-1100*	LDA 700 LDA 500	1,2 bar 202,0-208,0 (199,0-211,0) 0 bar 96,0-102,0 (93,0-105,0)	100 400	min.170,0		6,0	

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Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PRS370 + US-RSVP0/495	0,64	0,28	12,8-12,9 10,5-10,6
	1.		
		·	

Notes

(1) when n =

rev/min and gauge pressure =

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 DAF 8,3 k 6. Edition

___E

PE 6 A 9

Test the to Servi
All tests;
A. Fi
Port clos

Rotation
rev/min
1

PE 6 A 95 D 410 RS 2525, Y, X

RQ 225/1200 AB 1007 L

supersed2s 82 company DAF engine DN 825 (Y.X) DHR 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.00-2.10 RW9

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Oifference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12,6+0,1	10,8 - 11,0	0,3(0,6)			
225	5,7-5,9	0,7 - 0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9

B. Governor Settings and max. = $3,0-4,0^{\circ}$.

Checkin	g of slider	Full-load	speed re	gulation		Idle speed regulation				Torque o	control
PRG che	() /	Setting po	pint	Test spec	cifications (4)	Setting p	oint	Test spe	cifications (5)		(3)
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rad travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	travel
1	2	3	4	5	6	7	8	9	10	11	12
650	19,2-20,8	650	20,0	11,6	1230-1245	225	5,8	100	min.7,2	-	-
VH =	max. 46°			4,0 1450	1315-1345 0 - 1,0			225 340- 450	5,7-5,9 380 = 2,0 max. 1,0		

Torque-control travel on flyweight assembly dimension a =

mm

1230-1245 min⁻¹

1 mm less controi rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	Starting I	
rev/min 1	cm³/-1000 strakes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	Control red travel cm ³ /1000 strokes / mm
LDA 1000 X 1000	0,7 bar 106,5 - 108,5 (104,5 - 110,5) 90,5 - 92,5	(12 mm RW	LDA 600 X 600	0 bar 77,5 - 80,5 (75,5 - 82,5) 77,0 - 80,0	100	121,5-131,5 = 19,5-21,0 mmRW
Y 1000	99,0 - 101,0	(12,5 mm RW)	Υ	77,0 - 80,0		

Checking values in brackets

Testatn =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PE 6 ARS 2525 +AB 1007 L	0,7	0,30 0,25 0	12,6 - 12,7 12,2 - 12,3 11,5 - 11,7 11,2 - 11,3

Notes

(1) when a

revimin and gauge pressure

estoil-ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 k 1

3. Edition

En

PE 6 A 95 D 410 RS 2525, X, Y

RSV 250-1200 A 5 B 2013 DL supersedes 10.81 company

engine

DN825 (X, Y)

DHP/DHTD 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015. All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15) 2,00-2,10 RW 9^{mm (from BDC)}

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1000	12,6+0,	10,7 - 10,9	0,3(0,6)	-	3	0
250	6,0-6,2	0,8-1,0	0,3(0,5)			
600	11,6+0,1	C, Sp. 4 u.5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = $3.0-4.0^{\circ}$.

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed :	(3) Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 X =	0,3-1,0 4,25	-	-	-	ca.21	250	5,6	1	12,6+0,
	i ^ -	, T,EJ	j						400	12,6+0,
ca55	1230-1	240=11.6	!				250	6,0-6,2	300	12,8+0,
(5)(3.10)	1330-1 1490=0	240=11,6 360=4,0 ,3-1,7			_		595-6	55 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-toa	nd stop	6 Rotational- speed limitat.		delivery racteristics	Starting idle	fuel delivery	(5a) idle stop	
· ·	rest oil temp. 40°C (104°F) ev/min cm³/1000 strokes Note changed to rev/min 2		rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*	LDA 600	0 bar 82,5-85,5 (80,5-87,5)	100	19,0-21,0 mm RW	250	6,1
1000 Y 1000	90,5- 92,5 99,0-101,0		600 Y 600	77,0 - 80,0 77,0 - 80,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2525 + 2013 DL	0,7	0,27 0,23 0	12,6 - 12,7 12,2 - 12,3 11,5 - 11,8 11,2 - 11,3

otes

il) when n =

rev/min and gauge pressure

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 m 5. Edition

En

PE 6 P 110 A 320 RS 273 RQV 250-1100PA 530 1 - 5 - 3 - 6 - 2 - 4 je $60^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersede • 81 company: VOTVO engine. TD 100B

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,55-2,75)

Port closing at pres	troke	2.60-2.70	mm (from BDC)	mm (from BDC)							
stational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/m,n 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6					
700	10,0	14,8 - 15,0	0,4(0,8)			2,5 [±] 0,1 **					
250	+0,1 5,1-5,3	0,8-1,2	0,3(0,7)			(max.2,2-2,9)					
	<u> </u>										

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s			1 1 1			Lower rated	speed	I	Sliding sleeve travel	
deflection	revimin Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		①
1."	mm	rev/min (2a)	lever	rev/min	mm . 4	lever	rev/min	mm (3)	rev/min	cn/m
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8				ca.10	100 250	min.6,7 5,1-5,3	250 450	1,1 2,5-2,8
ca. 40		1140-1150 1225-1255 0 - 1,0						365=2,0	1150	7,2
						3a				

Torque control travel a =

m~

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		limitation intermediate speed	high idle s	very characteristics 5a	Starting Idle switchir	, 0	Torque- travel	control 5	
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	Lea/Luiu	cm ³ /1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
LDA 700	0,8 bar 148,0-150,0 (145,0-153,0)		LDA 700	0 bar 112,5-115,5 (109,5-118,5		160 – 180			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

	~~~		
Pump/governor	Setting	Measurement	Control rod trace Xirix mution
	Gauge pressure = bar	Gauge pressure - bar	mm (1)
273 + 530	0,8 bar	0,4 bar 0,25 bar 0	10,0 - 10,1 9,5 - 9,7 8,8 - 8,9 8,4 - 8,5

Notes

(1) when n =

rev/min and gauge pressure =

# **Testoil-ISO 4113**

# Test Specifications Fuel Injection Pumps 1 PPP 001/4 FIA 13,8 m and Governors

Edition

PE 8 P 120 A 920/5 LS 3804

ROV 300-950 PA 475 R

supersedes 81 companyFiat engine: 8285 • 22

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2  $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 \stackrel{+}{=} 0,5^{\circ}(\stackrel{+}{=}0,75^{\circ})$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke (	3,45-3,65) <del>3,50-3,60</del>	mm (from BDC)			
Rotational Speed rev/min	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,1+0,	1 20,7 - 21,1	0,5(0,9)			•
300	4,9-5,1	1,5 - 2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Sper rated s	peed		Intermediate rated speed			Lower rated	speed	Sliding sleeve travel		
Degree of deflection	rev/min Control	Control rod ta	Degree of deffection		Control rod travel	Degree of deflection of control		Control rod travel		•
of control lever	rod travel mm	mm rev/min (2a)	of control lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Max.	950	15,2-17,8	-	-	-	ca.11	100	min.7,5		2,0-2,1
ca. 64	10,1	990-1000					300	5,9-6,1	400	3,1-3,5
ca. 64	-	1075-1105					300 <b>-</b>	-390=2,0	000	8,3
						(3a)			l	

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test on ten		Rotational-speed 20 limitation intermediate speed	Fuel deliv	\	Starting Idle switchir	fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 950	0,7 bar 207,0-211,0 (204,0-214,0)	990-1000*	LDA 950	0 bar 142,0-1 460 (139,0-149,0)		19,5-21 mmRW Electromagne		·

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor  Setting  Measurement  Gauge pressure = bar  Measurement  Control rod travel-difference mm (1)  11,1 - 11,2  10,4 - 10,5  9,0 - 9,3  0,28  0,28  0,28  0,28  0,35  0,28  0,28  0,35  0,28  0,35  0,4  10,4 - 10,5  9,0 - 9,3  8,3 - 8,4		XXXXX	Annual to the contract of the	protect with the control of the cont
LS 3804 + 0,7 RQVPA 475 R 0,35 0,28 11,1 - 11,2 10,4 - 10,5 9,0 - 9,3	Pump/governor	Setting	Measurement	Control rod travel-
0,28 9,0 - 9,3	The same of the sa	Gauge pressure = bar	Gauge pressure = bar	mm (1)
	LS 3804 + RQVPA 475 R		0,28	10,4 - 10,5 9,0 - 9,3

Notes

(1) when n =

rev/min and gauge pressure =

# estoil-150 4113||

# Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 KHD 6,1 f 2. Edition

En

PES 6 A 85 D 410 RS2572 ..410/3..

RQ 300/1325 AB1070DL RQV 300-1325 AB1072DL supersedes 4.79

K H D

company:

BF 6 L 913

engine:

118 kW (160 PS) 2650 min

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2,15-2,35)

mm (from BDC)

		2,10 2,007				
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	13,1	8,8-8,9	0,3(0,45		·	·
	+0,1					
300	4,9-5,1	0,9 - 1,5	0,2(0,4)			
		<u> </u>				

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checking PRG che	( ' /	Full-load s Setting po	int	Test spec	cifications (4)	Idle spec	_		cifications (5)	Torque o	control (3
rev/min	Control rod travel mm	rev/min 3	Control rod travel rnrn 4	Control rod travel rnrn 5	rev/min	rev/min 7	Control rod travel rnm 8	rev/min	Control rod travel mm	rev/min	Control rod travel
855	19,2-20,8	855	20,0	12,1		1	6,0		min. 7,5	-	-
1350	Breakaway	VH c	a.49	4,0	1450-148	0		İ	5,9-6,1 -545=2,0 0 - 1		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	control ravel cm ³ /1000 strokes / mm 7	
LDA 1325	0,7 bar 87,5 - 88,5 (85,5 - 90,5)	·	LDA 850 LDA 500	0,7 bar 81,5 - 84,5 (79,5 - 86,5) 0 bar 52,0 - 54,0 (50,0 - 56,0)	100 Elec	19-21 mm RW ₁ tromagnet 24V	
				·		./.	

Checking values in brackets

RQV..1072DL

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed	1	Sliding sl	eeve trave!
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 3		Degree of deflection of control lever	rev/min	travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	fev/៣ហ 10	mm 11
max.	1325	15,2-1	7,8	-	-	-	ca.13	100 300 375	min.7,5 5,9-6,1 -435 =2,0	300 900	1,4-1,6 4,2-4,4
ca.47	12,1 4,0 1600	1365-1 1455-1 O -					(3a)	530	0 - 1	1370	8,4

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	•	Rotational-speed 2b limitation intermediate speed	Fuel deliv character high idle s	ristics	Starting Idle switchir	fuel delivery 6	Torque- travel	Control 5  Control rod
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm :/1000 strokes	rev/min	mm 9
LDA 1325	0,7 bar 87,5 - 88,5 (85,5 - 90,5)	1365-1375*	LDA 850 LDA 500	0,7 bar 81,5 - 84,5 (79,5 - 86,5 0 bar 52,0 - 54,0 (50,0 - 56,0	Ele	19-21 mm RW tromagnet 24	1 /	

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than co: 2

#### D. Adjustment Test for Manifold Pressure Compensator

Testat n =

rev/min ncreasing

Pump/governor	Setting	Measurement	Control rod trakky XXXXX
	Gauge pressure = bar	Gauge pressure = bar	mm
2572 + 10700	0	0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2
2572 ₊ 1072D	0	0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2

En

Set full-load delivery at control lever and manifold-pressure compensator (LDA). Then turn LDA adjusting sleeve (for deliveryamount) 1/2 turn in the direction more control-rod travel.

## **Test Specifications** Fuel Injection Pumps (A) and Governors

WPP 001/4 DAF 11,6k3

1. Edition

PE 6 P 110 A 320 RS 372-1

RSV 250-1100 P5/458 R P5/458-1

supersed∈s DAF

company

**DKTD 1160** 

See service Information VDT-I-DAF 004

engine 191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm·/100 strokes	mm
1	2	3	4	2	3	6
850	12,0+0,1	13,6 - 13,8	0,4 (0,8)			
250	6,6-6,8	0,7 - 1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

	\ ' <i>J</i>		Intermediate rated speed			4 Lower rated speed			(3) Torque control	
deflection	Control rod travel	travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	<del>-</del>		ca. 21	250	6,2	400	12,2+0,1
,	x =	4,25					250	6,6-6,8	300	12,4+0,5
ca. 51	11,0	1140-115	p D				640-700	= 2,0		
(2a)	4,0 1425	1275-130 0,3 - 1,	5							
0	1423	0,5 - 1,	<u> </u>						! 	

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

9	il-load stop	Rotational- speed limitat	IIJa:	el delivery aractenstics			4a) tdle stop		
rev/min	cm //1000 strokes	Note changed to ) rev/min 3	rev/min 4	cm4/1000 štrokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm	
LDA 850	0,7 bar 136,0-138,0 (133,0-141,0)	1140-1150*	LDA 600		100	245,0-285 = 19,5-21 mm RW		6,6-6,	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

	T	
Setting	Measurement	diminution Control rod travel- difference
Gauge pressure = bar	Gauge pressure = bar	mm (1) .
0,30	0,70 0 0,26	11,8-11,9 12,0-12,1 11,4-11,5 11,5-11,7
	Gauge pressure = bar	Gauge pressure = bar Gauge pressure = bar  0,30  0,70  0,26

Notes

(1) when n =

rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

C22

# **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 k 4 1. Edition

PE 6 P 120 A 320 RS 372-1

RSV 250-1100 P5/458 R

supersedes

DAF company

**DKS 1160** engine

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm/100 strokes	mm
1	2	3	4	2	3	6
850	10,9+0,1	19,1-19,5	0,5 (0,9)			
250	6,2-6,4	1,1-1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Uppe	Upper rated speed rev/min		Intermediate rated speed			Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X =	0,3-1,0 5,0	•	-	-	ca. 24	250 250	5,8 6,2-6,4	400 300	11,1+0,1 11,3+0,5
ca.54	9,9 4,0 425	1140-1150 1260-1290 0,3-1,7					620-680	= 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Fu	ill-load stop	6 Rotational- speed limitat	11.341	uel delivery paracteristics	Starting f	uel delivery 5	(4a) Idle	stop
Test oil to rev/min 1	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to ) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850 (	0,7 bar 191,0-195,0 188,0-198,0)	1140-1150*	LDA 600	0 bar 133,0-137,0 (130,0-140,0)	100	315,0-355, = 19,5-21, mm RW		6,2-6,4

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS372-1	0,36		10,6 - 10,7
+P5/458R		0,70	10,9 - 11,0
		0	9,8 - 9,9
		0,28	10,0 - 10,2

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

### **Test Specifications Fuel Injection Pumps** and Governors

WPP 001/4 MB 5,7 q 2 9. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 AOB 783 L

supersedes . 82

company: Daimler-Benz

OM 352 A

110 kW (150 PS)

Dimensions H = 22.5 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

otational speed	Control rod travel	Fuel delivery  cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery  cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
•///	2	3	4	mm 2	3	mm 6
1300	11,0+0,1	7, 0 - 7,1	0,3(0,45			
350	6,9-7,1	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper	rated speed	•	Intermediate	rated spe	ed	(4) Lowe	r itated spe	ed	(3) To	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.25	350	7,0	1300	11,0+0,1
	X =	3 <b>,</b> 5					100 350	min.19,0 7,4-7,6		11,6+0,1 11,4+0,2
ca. 65	10,0 4,0 1550	1340-1350 1435-1465 0,3-1,7					1	30= 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Fuilt-to	ad stop	6 Rotational- speed limitat.		el delivery practeristics	Starting Idle	fuel delivery	Sa) idle stop	
Test oil temp. 40°C (104°F)  rev/min		Note: changed to rev/min 3	rev/min 4	rev/min cm³/1000 strokes 4 5		cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300 800	0,7 bar 70,0-71,0 (68,0-73,0) 65,5-68,5 (63,5-70,5)	1340-1350*	500 LDA 500	0,7 bar 60,0-63,0 58,0-65,0) 0 bar 54,0-56,0 52,0-58,0)	100	14,5-14,9 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A RS 2293 AOB 783 L	0,38	0,7	11,4 - 11,5
••••••		0	11,6 - 11,7 11,0 - 11,1
		0,33	11,1 - 11,3
• •			

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

Testoil-ISO 4113

Testing the hydraulic start-locking device

Locking at 0,4-0,5 bar Unlocking at 0,2-0,3 bar

Test Specifications
Fuel Injection Pumps 2
and Governors

40

WPP 001/4 DAF 8,3 L

7. Edition

<u>En</u>

PE 6 P 100 A 720 RS 373

RQ 250/1200 PA 464 R EP/RSV 250-1200 PO/447R supersedes1.1 -81
company: D A F
DHU 825

(169kW-230PS)

See service Information VDT-I-DAF 004 Start-of-delivery test without, Start-of-delivery test with Robo diaphragm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Zy1. 6

					-	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery III • 404 R cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3-12,4	12,8 - 13,0	0,3(0,6)	12,3-12,4	12,8 - 13,0	
250	7,2-7,4	0,8-1,2	0,3(0,5)	7,27,4	0,8-1,2	

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

RQ.. 464 R

	g of slider				Idle spec	•			Torque control		
PRG che rev/min 1	Control rod travel	Setting por rev/min 3	Control rod travel mm	Test spec Control rod travel mm 5	rev/min		Control rod travel		cifications (5) Control rod travel mm	rev/min 11	Control rod travel mm
700	15,6-16,4	700	16,0	11,3	1245-1260 1320-1350		7,3	250	min. 8,4 7,2-7,4		
				1450	0 - 1,0			4 70-	510= 2,0		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for the speed	d Contra
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	rad travel cm ³ /1000 strokes:/ mm 7
LDA	0,7 bar		LDA	0 bar	100	195,0-215,0
1000	127,5 - 1,29,5 (125,5 - 131,5)		500	89,5 - 92,5 (87,5 - 94,5)		
						./.

Checking values in brackets

11.82

#### **B. Governor Settings**

RSV....447 R

(1) Uppe	er rated speed		Interm	ediate rat	ed speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X = 4	0,3 - 1,0 1,5				ca.23	250 250	6.8 7,2-7,4	400 300	12,5-12,6 12,7-13,2
23.50 23	4,0 1	240-1250 1350-1380 1,3 - 1,7					560-620	= 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp. 40°C (104°F)	6 Rotational- speed limitat	usai	uel delivery paracteristics	Starting fuel delivery 5 4a Idle stop				
rev/min	cm ³ /1000 strokes	Note. changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm	
LDA 1000	0,7 bar 127,5 - 1 _{29,5} (125,5 - 131,5)	12040-1250 ⁻	LDA •500	0 bar 89,5 - 92,5 (87,5 - 94,5)	100	195,0-215, = 19,5 - 21,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

# Testoil-ISO 4113

#### D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
373 + 464 R	0,7		12,3-12,4
n = 600		0	11,2-11,3
n = 600		0,34	12,0-12,1
		0,30	11,5-11,7
373 + 447 R	0,7		12,3-12,4
n = 600		0,15	11,5-11,7
		0,22	12,0-12,1
	•	0	11,2-11,3

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

WPP 001/4 DAF 11,6K1 3. Edition

PE6P120A320RS372 RQ250/1100PA 417 R

 $1 - 5 - 3 - 6 - 2 - 4 \pm 0.50^{\circ}$ 0-60-120-180-240-300 ( 0,75) supersedes 10.80 DAF

**DKS 1160** 

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke (2.75-2.95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10.9-11	0 19,1 -19,5	0,4(0,8)			
250	6,2-6,4	1,1 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

1	Checking of slider PRG check Control rod travel		d speed regulation  point   Test specifications 4  Control   Control     Control		1 ,		Control rod	Control rod			
rev/min 1	1 -	rev/min 3	mm 4		rev/min 6	rev/min 7	1	1	mm 10	rev/min 11	travel mm 12
_700	15,6-16,4	700	16 <u>,</u> 0	9,9 4,0 1350	1145-1169 1210-1240 0 - 1,0		6,3	250	min.7,4 6,2-6,4 485=2,0		10,9-11,0 10,8-11,0

Torque-control travel on flyweight assembly dimension a =

Speed regulation: Al 145-1160 min -1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	· (2L)	Starting fi Idle spee	uel delivery d G
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
LDA 850	0,7 har 191,0 - 195,0		600	133,0 - 137,0 (130,0 - 140,0)	100	315,0 - 355.0 = 19,5-21.0 mm RW
	(188,0 - 198,0)				250	6,3 п RW

Checking values in brackets

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
372 + 417R	0,7	0 0,30 0,26	10, 9- 11,0 9,8- 9,9 10,6- 10,7 10,0- 10,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

# Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ① WPP 001/4 FIA 13,8a1 and Governors 3. Edition

PE 6 P 120A720 RS 167 RQV 225-1100 PA 177 R 337 R 478 R

superseded 1.80 Fiat company: 8210.02.422 engine: 221A

Testing with T nozzles and fuel lines 8 x 2 x 1000 according to ... W 400/305

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings 2,00-2,10

Port closing at prestroke mm (from BDC) 1,95-2,15) Rotational speed Fuel delivery Difference Control rod travel Control rod Fuel delivery Spring pre-tensioning (torque-control valve) rev/min cm³/100 strokes 100 strokes cm³/100 strokes mm mm 1100 19,3 - 19,70,5(0,9)11,4-11 20, 1 - 20, 5n=1100 225 7.5-7.6 2.3 0.8(1.2)7.5-7.7 n=225

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

**RQV...177R** 

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	_	Slidinge	leeve travel
deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Onding 3	0
lever	mm	rev/min (2a	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	1100 1350	15,2-17,8 0 - 1,0	_	-		ca.10	100 225	mind.7,5 5,9-6,1		1,2-2,0 8,2
ca. 60		1140-1150 1200-1230					460-5	20=2,0		-
						<b>3</b>				

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delin high idle s	very characteristics 5a	Starting Idle switchir	• •	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1100	193,0 - 197,0 (190,0 - 200,0	) 1140-1150* )			100	min. 16,0 mm RW	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2 8.82

(1

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Slidings	leeve travel
deflection of control	rev/min Control rodtravel mm	Control rod travel mm rev/min	(2a)	Degree of deffection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm 1
1	2	3		4	5	6	7	8	9	10	11
max. ca. 59		15,2-17 1140-1 1205-12 0 -	150 235				ca.11	100 225	min. 9,1 7,5-7,7		2,6-3,0 4,7-5,0
						-	295-410 ③				

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel delin high idle s	very characteristics (5a) speed (5b)	Starting Idle switchir		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm /1000 strokes		cm:/1000 strokes	rev/min	travel mm
1100	201, 0-205, 0 (198, 0-208, 0)	7			100	19,5-21,0 Electromagne	t 24V	9

Checking values in brackets

Testoil-180 4113

* 1 mm less control rod travel than col. 2

**B.** Governor Settings

RQV...478R*

						_					
Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed	The second section of the second seco	61.4	
Degree of deflection of control lever	rev/min Control rod travel mm	mm		Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	leeve travel
1	2	3	$\perp$	4	5 .	6	7	8	9	10	11
ca.68	1100 1350	15,2-17 0 - 1,0					ca.11		mind.8,5 7,5-7,7		0,8 2,4-2,6
ca.62		1140-1150 1205-123					(3a)	590-6	60 =2,0	1150	8,6

Torque control travel a =

mm

Control switch must light up at n = 1215-1225

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		intermediate speed	Fuel delin high idle s	very characteristics 5a speed 5b	Starting Idle switching		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min		tea/wiu	travel mm
1	2	3	4	5	6	7	8	9
1100	202, 0-205, 0 (199, 0-208, 0)	1140-1150*		·	100 *	19,5-21,0 Electromagne Control swit n=1215-1225	t 24V ch	

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 RVI 12,0 d 1. Edition

En

PE 6 P 110 A 320 RS 335

RSV 300-1100 P1/815 DR

supersedes=

company RVI

engine MDS 635-40

169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,25-1,45)

mm (from BDC)

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

(1) Uppe	er rated speed	rev/min	Interme	diate rated	speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
100se	800 X= 4	0,3-1,0 ,75	_	_	_	ca.27	300 300	6.0 6,4-6,6	1100 900	11,1+0,1 12,2+0,1
ca.63	10,1 4,0 1300	1140-1150 1185-1215 0,3- 1,7					500-560	<b>0=2,0</b>	650	12,7+0,1

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	ILJA!	iel delivery paracteristics	Starting I	ruel delivery 5	4a) Idle stop		
rev/mia	cm ³ /1000 strokes 2	Note- changed to ) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7 °	rev/min	Control rod travel mm	
LDA 1100 LDA 650	0,7 bar 139,0-141,0 (136,0-144,0) 0,7 bar 165,0-170,0 (162,0-173,0)		LDA 900 LDA	0,7 bar 159,5-163,5 (156,5-166,5) 0,3 bar 152,5-162,5 (149,5-165,5)	100 LDA 350	190,0-210, bei 19,5- 21,0 mm RW 0 bar 109,0-113,		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.82

**BOSCH** 

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6PRS335 +P1/815DR	0,30	0,70 0 0,18	12,1-12,2 12,7-12,8 10,6-10,7 11,0-11,4
			·

Notes

(1) when n =

rev/min and gauge pressure =

bar (* maximum full-toad control rod travel)

# Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 x

6. Edition

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L RQV 300-1400 AB 1141 L RQV 300-1400 AB 1142 L

supersede3.82 company Da imler-Benz engine OM 352 A 124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings 2,15-2,25

Port closing at pres	troke	(2,10-2,30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery  cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rodi travel	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)
<u>'</u>	2	3	4	2	3	6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

.. AB 1140 L, .. AB 1141 L, .. AB 1142 L

Upper rated s	peed	1		Intermediate	ite rated speed			Lower rated	speed				
deflection of control	rev/min Control rod travel	Control rod travel mm		Degree of deflection of control		Control ro travel	ed 🕡	Degree of deflection of control		Control n	od	Shound 2	leeve travel
lever	mm	rev/min	<b>(28)</b>	lever	rev/min	шш	(4)	lever	rev/min	mm	(3)	re~/min	mm
1	12	3		4	5	6		7	8	9		10	11
max.	1500	16,0-19	,4	-	-	-		ca.15	100	min.9	.2	250	0,9-1,1
										7,6-7		600	3,1-3,4
ca. 61	10,3	1435-14								•		950	5,3-5,5
	4,0	1550-158	30							•		1400	8,2
	1650	0 - 1	,0				:	ll					• •
l								350-479	•				
								<b>3</b> a)					

Torque control travel a =

ma

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil tei		Rotational-speed (2b) limitation intermediate speed	Fuel deliningh idle s	very characteristics (5e) speed (5b)	Starting Idle switching	. 0	Torque- travei	control (5
rev/min 1	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

*1 mm less control rod travel than col. 2

1375 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting  Gauge pressure - bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES6ARS2293 AB1140L +AB1141L AB1142L	0,7	0 0,28	11,3 - 11,4 11,0 - 11,1 11,1 - 11,2

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

Testoil-ISO 41:13

### **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 n 5

3. Edition

PES 6 A 90 D 410 RS 2520

RQV 300 - 1425 AB 982 DL

supersedes 79 companyDaimler Benz engine OM 352 A 127 kW (172 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
1,80-1,90
Port closing at prestroke (1,75-1,95) mm mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	7,9 - 8,0	0,3(0,45)			
300	7,5-7,7	0,9-1,5	0,2(0,4)			•

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated :	beeca		Intermedia	e rated sp	eed	Lower rated	speed			
deflection	rev/min Control rod travel	Control rod travel	of control		Control rod travel	Degree of deflection of control		Control rod travel	Sliding s	leeve travel
lever	mm	revimin (2	lever	revimin	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1425	16.0-19,	1 -	-	-	ca.10	100 300	min.7,4	400	1,4-2,2
		1440-145 1560-159						15,8-6,0 630 =2,0 0 - 1	1425	8,1
	1700	0 - 1,	0			350-500		0 - 1		
				1	ļ	<b>③</b>				

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roo Test oil ten		(104°F) 2 Intermediate speed		rery characteristics(5a)	idle	fuel delivery 6	Torque-	control 5
rev/min	cfh³/1000 strokes	revimin 4	rev/man	cm ³ /1000 strokes	rev/min	cm¥1000 strokes	rev/min	mm
·		3	4	5	6	7	8	9
LDA 1400	0,7bar 79,0-80,0 (77,0-82,0)	1440-1450*	LD <b>A</b> 60 <b>0</b>	0,7 bar 76,0 - 78,0 (74,0 - 80,0)	100	14,0-14,6 mm RW	1400 1200	11,8
800	82,0 - 84,0 (80,0 - 86,0)		LDA 500	0 bar 62,0 - 65,0 (60,0 - 67,0)			1000 600	12,1 12,6

* 1 mm less control rod travel than col. 2

11.82

Test at n =

800

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
	Gauge pressure = bar	Gauge pressure = bar	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2520 + 982 DL	,	0,65	12,5 - 12,6
		0,17	12,2 - 12,3
	0,14		11,7 - 11,9
		0	11,5 - 11,6
i :			

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

### **Test Specifications** Fuel Injection Pumps and Governors

WPP 001/4 MAN 11,1 q 1

2. Edition

PES 6 P 110 A 720 LS375

ROV 250-1100 PA373DR (1)

250-1100 PA334 R (2)

supersede 2 o 78

companyM A N engine D2566 MTF/MTE

(1-2:206kW - 280PS)

$$6 - 2 - 4 - 1 - 5 - 3$$
  $\stackrel{7}{=}0,50$   $0 - 60-120-180-240-300$   $\stackrel{7}{=}0,75$ 

A. Fuel Injection Pump Settings

Port closing at prestroke

Zv1. 6

- Git Gio - Gitte pres		2,95-3,15)	11111 (110111 DOC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,1	14,70-14,90	0,4(0,8)			
	+0,1		1			1
250	6,9-7,1	1,00- 1,60	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated	sp <del>ee</del> d		Intermediate	e rated sp	eed	Lower rated	speed		Sliding st	eeve travel
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Torque-c	ontrol travel
leve:	rey/min	mm	lever	rev/min	mm	lever	rev/min	ការា	rev/min	mm
,	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.16	250	min.8,5 6,8-7,0	250 500	0,9-1,1
ca.68	11,1 4,0 1400	1140-1150 1280-1310 0 - 1,0					600	580=2,0 0 - 1	800 1150	5,4 <b>-</b> 5,5   8,3

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed limitation	Fuel deliv			fuel delivery ig point	Intermed rotational Torque-c travel	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	+0,1
(1) 1100	LDA 0,7 bar 147,0-149,0	1140-1150*	LDA 500	0,2 bar 123,0-127,0	100	225-245	1100	12,1
700	(144, 0-152, 0)			(120,0-130,0)	250	7 mm RW	850	12,4
700	157,0-161,0 (154,0-164,0)	·	LDA 500	0 bar 111,0-113,0 (108,0-116,0		 -170 (80-190)	700	12,8

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

<del></del>									<u> </u>	
Upper rated :	speed		Intermediate	rated spe	ed	Lower rated	speed		Chara	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm (2a)	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm
ca.50	1100 1350	15,2-17,8 0 - 1	-	-	· <b>-</b>	ca.11		6,8-7,0	900	' '
ca.47		1140-1150 1200-1230					500	)-410=2,0 ) 0 - 1	1100	
						(3a)				

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem		Rotational-speed 2b limitation intermediate speed	character high idle s	ristics	Starting Idle switching	fuel delivery 6	Torque- travel	Control rod
rev/min 1	cm ³ /1000 strokes 2	rev/min (4a)	rev/min 4	cm ³ /1000 strokes	rev/min	cm 1/1000 strokes	rev/min	travel mm 9
(2) 1100	147,0-149,0 (144,0-152,0)	1140-1150 *			100	225-245		
			-					

Checking values in brackets

# Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

#### D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel-
·	Gauge pressure = bar	Gauge pressure = bar	difference mm
375 + 373DR	0,68		12,8-12,9
	,	0,32	12,3-12,4
		0,20	11,5-11,7
		0	10,9-11,0

En

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WPP 001/4 DAF 11,6 u 1
1. Edition

En

PE 6 P 110 A 720 RS 441

RQ 225/1200 PA 617

supersectes

Compan DAF

DHS 825

engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95

mm (from BDC)

		(2,,0 2,50)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery  cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	12,2+0,1	13,7-13,9	0,4 (0,8)			
225	5,2-5,4	0,7-1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che		Full-load s Setting po			cifications (4)	ldle spee Setting p	point		cifications (5)	Torque o	(3)
rev/min	travel		rod travel mm 4	red travel mm 5	rev/min 6	rev/min 7	Control rod travel mm	rev/min	travel	rev/min	Control rod travel mm
650	15,6-16,4	650	16,0	11,2 4,0 1450	1235-1250 1310-1340 0 - 1,0		5,3	100 225 360-	min. 6,3 5,2-5,4 400 = 2,0		12,2-12,3 12,1-12,3

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 235-1250 min

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics		Starting fuel delivery Idle speed Control			
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/mia	rod travel cm³/1000 strokes/ mm			
LDA 1000	0,7 bar 136,5-138,5 (133,5-141,5)		LDA 600	0 bar 91,5-94,5 (88,5-97,5)	100	245,0-285,0 = 19,5-21,0 mm RW			

Checking values in brackets

11.82

BOSCH

Test atn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/gavernor	Setting	Measurement		diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure =	bar	mm (1) .
PE6PRS441	0,36			11,7 - 11,8
+ RQPA617		0,70		12,2 - 12,3
		0		10,4 - 10,5
		0,30		11,0 - 11,2
·				

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 DAF 11,6 i 8
1. Edition

<u>En</u>

PE 6 P 110 A 320 RS 372-1

RQ 250/1100 PA 417-1

supersedes DAF

company:

engine: DKTD 1160

191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm ⁷ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0÷0,1	13,7-13,9	0,4(0,8)			
250	6,6-6,8	0,6-1,0	0,4(0,7)			
				1	1	İ

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checking of slider Full-load speed re PRG check 1 Setting point		7			Idle speed regulation Setting point Test specifications (5)				Torque c	ontrol (3)		
rev/min	Control rod travel mm 2	rev/			Control rod travel rnm 5	rev/min	rev/min 7	Central red travel rrim 8	!	Control rod travel mm		Control rod travel mm
700	15,7-16	,4 7	700	16,0	11,0 4,0 1350			6,7		min.7,8 6,6-6,8 500 = 2,0		12,0-12,1 11,9-12,1

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160 min⁻¹

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics	Starting for	uel delivery 6
rev/min	cm ³ /-1000 strokes 2	rev/min  3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:/ mm
LDA 850	0,7 bar 137,0-139,0 (134,0-142,0)	-	LDA 600	0 bar 127,5-130,5 (124,5-133,5)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

11.82

BÖSCH

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

- 000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS372-1	0,30		11,8 - 11,9
+PA417-1		0,70	12,0 - 12,1
		0	11,4 - 11,5
		0,26	11,5 - 11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

**Testoil-ISO 4113** 

WPP 001/4 DAF 11,6 • 3. Edition

En

PE 6 P 110 A 320 RS 372

RQ 250/1100 PA 417R

supersedes 81
companyDAF
engine: DKTD 1160
191 kW (260 PS)

1 - 5 - 3 - 6 - 2 - 4

 $0-60-120-180-240-300^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2.80-2.90

mm (from BDC)

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
12,0	13,7 - 13,9	0,4 (0,8	)		
+0,1 6,6-6,8	0,7 - 1,1	0,4(0,7)			·
	travel mm 2 12,0 +0,1	travel mm cm³/100 strokes 2 3 12,0 13,7 - 13,9 +0,1	travel mm cm³/100 strokes 2 3 4  12,0 13,7 - 13,9 0,4 (0,8) +0,1	travel mm cm³/100 strokes 2 3 4 2 12,0 13,7 - 13,9 0,4 (0,8)	travel travel cm³/100 strokes 2 3 travel mm cm³/100 strokes 2 3 cm³/100 strokes 2 3 travel mm cm³/100 strokes 2 3 travel mm cm³/100 strokes 2 3 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes 2 travel mm cm³/100 strokes

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checking of slider PRG check Control rod travel mm	Full-load speed re Setting point Control red travel	Test spec	rev/min	Idle spec Setting p	Control rod travel mm	Test spe	1	rev/min	Control rod travel
700 15,6-16,4	700 16,0		1145-1160 1220-1250 0 - 1,0	250	6,7	250	min. 7,8 6,6-6,8 510=2,0 1,0	850 1100	12,0-12,1 11,9-12,1

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed			
rev/min 1	cm ³ /-1000 strokes 2	rev/min	rev/min 4	cm ³ /-1000 strokes	rev/min 6	red travel cm ³ /1000 strokes / mm 7		
LDA	0,7 bar		LDA	o bar				
850	137,0 - 139,0 (134,0 - 142,0)	·	600	127,5 - 130,5 (124,5 - 133,5)	100	19,5-21,0 mm R 245,0-285,0		

Checking values in brackets

11.82

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure XXXXXX

	XXXXXX		
Pump/governor	Setting	Measurement	diminution Control rod ** ********************************
	Gauge pressure = ba	Gauge pressure = bar	
RS 372 + PA 417R		0,70	12,0-12,1
7.111 411K	0,30		11,8-11,9
		0,26	11,5-11,7
		0	11,4-11,5
•			

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

**Testoil-ISO 4113** 

PE6P100A720RS373

RQ250/1200PA418R

supersedes 81

company DAF

engine: DHU 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.45 - 2.65)

(from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000 250	12,3-12, 7,2-7,		0,3(0,6) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che rev/min 1	Control rod travel	Full-load: Setting po rev/min 3			cifications (4) rev/min	Idle spec Setting p rev/min 7			cifications 5 Control rod travel mm	Torque o	Control rod 3
650	15,6-16,4	650	16,0	11,3 4,0 1450			6,0	100 250 470-	min. 8,4 7,2-7,4 510 =2,0	<b>1000</b>	
	ontrol travel ght assembly dimen		<b>-</b>	mm	Spe	ed regula	1 ition: At	245-1	260 min		1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control red travel cm ³ /1000 strokes:/ mm 7	
LDA 1000	0,7 bar 127,5 - 129,5 (125,5 - 131,5)		LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195, 0-215, 0 19, 5-21, 0 mm RW	

11.82

Test at n =

600

rev/min decreasing pressure ~ in bar gauge pressure

000	XXXXX			
Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure = b	mm (1) .
RS 373 +	0,34			12,0-12,1
PA 418R			0,70	12, 3-12, 4
			0	11,2-11,3
			0,30	11,5-11,7
				-
	·			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 CAS 8,3 a

1. Edition

En

PES 6 A 100 D 420 LS 3024

US-EP/RSV 375-1100 A2B 2062 DR

supersedes

company
Case
A-504 BDT

engine 210 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strakes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	11,6+0,1	14,0-14,2	0,3 (0,6)			
375	6,5 - 6,6	1,8-2,4	0,3 (0,7)			
				ļ		
	}					
	<u> </u>		_ 1		<u></u>	

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

1 Uppe	er rated speed	rev/min	Interme	diate rate	d speed	<b>(4)</b>		rated speed	(3)	que control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x =	0,3-1,0	-	-	<u>-</u>	ca.23	375 100 375	6,0 min. 19, 6,4 - 6,	Ł	12,0+0,3
ca. 50	10,6 4,0 1260	1140-1150 1205-1235 0,3-1,7					410-470 800	= 2,0 max. 1,0	000	12,1+0,1

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	it load stop	6 Rotational- speed limitat		iel delivery naracteristics	Starting I	uel delivery 5	4a) Idle stop		
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to ) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7 -		travel mm	
1100	139,5-141,5 (137,5-143,5)	1140-1150*	700	142,0-148,0 (140,0-150,0)	100	130,0-150	,0 375	6,5	
ı			600	max. 158,0 (max. 150,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

**BOSCH** 

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. < 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Federale d'Allemagne par Robert Bosch GmbH.

### **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 t 1

3. Edition

En

PE 6 P 110 A 320 RS 385

RSV 250-750 P7/479

supersed 82

DK, DKT, DKS, DKA 1160

1 - 5 - 3 - 6 - 2 - 4  $0 - 60 - 120 - 180 - 240 - 300 \pm 0,5^{\circ}$  ( $\pm 0,75^{\circ}$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
(2,75-2,95)
Port closing at prestroke 2,80-2,90

mm (from BDG# RW 9,0 - 12,0

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm/100 strokes	mm 6
<i>75</i> 0	12,6+0,1	16,9 - 17,1	0,4(0,8)			
250	6,8-7,0	2,6 - 3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	r rated speed		Interm	ediate rate	ed speed	4)	Lower	rated speed	1(3)	rque control
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	travel mm
lever	2	3	4	5	6	in degrees 7	8	9	10	11
loose	700	0,3-1,0				ca.18	250	6,9		
10036	X =	0.05					250	6,8-7,0		
ca. 44	790-7	95 = 11,6					245-30	=2,0mm		
<b>2a</b>	810-82 950 =0,	95 = 11,6 25 = 4,0 3 - 1,7			•					

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2b) Fu	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting f	uel delivery 5	(4a) Idl	e stop
rey/min	emp. 40°C (104°F) cm³/1000 strokes	Note changed to .) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strakes	rev/min 8	Control rod travel mm
750	169,0 - 171,0 (166,0 - 174,0)	790 <b>-</b> 795 <b>°</b>				19,5-21,0 mm RW	·	
					250	26,0-34,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a

1. Edition

PES 4 A 95 D 320 RS 2654

RSV 325-1050 A 2 B 2178 R

supersede Valmet company 411 DS 8

1-2-4-3 je 90°  $^{+}$  0,5° ( $^{+}$  0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6 (2,45-2,65)

mm (from BDC)

	\ _	970-29007				
Rotational speed	Control rod	Fuel delivery	Difference	Control red travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
•	mm (2)	cm1/100 strokes	cm ¹ / 100 strokes	mm	cm//100 strokes	mm
rev/min	2	3	4	2	3	6
1050	10,6+0,1	8,5-8,7	0,3 (0,6)			
325	7,2-7,4	1,2-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in E

#### **B. Governor Settings**

Uppe	r rated speed	rev/min	Interme	diate rate	d speed	4	_	rated speed	( v	que control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/mir:	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 31	325	6,3	1050	10,6-10,7
	x =	6,5					100	min.19,0	500	11,2-11,3
ca.53	9,6 4,0 1390	1090-1100 1225-1255 0,3-1,7					325 640 <b>-</b> 7 775	6,7-6,9 00=2,0 max. 1,0	900	10,8-11,1

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat	speed limitat Characteristics			uel delivery 5	4a idle stop		
Test oil te rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min B	Control rod travel mm 9	
1050	84,5-86,5 (82,5-88,5)	1090-1100*	500 750	80,5-83,5 (78,5-85,5) 89,5-91,5 (87,5-93,5)	100	156,5-166 = 19,5 - 21,0 mm RW	5 -	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

2

**Festoil-ISO 411** 

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6L

3. Edition

<u>En</u>

PE 6 P 100 A 320 RS 384

RQ 225/1000PA 442 R

supersede - 81
company DAF
engine DKDL 1

DKDL 1160 (125kW-170PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery  cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,0-11,1	9,8 - 10,0	0,3(0,6)			1
250	7,1-7,3	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

**B.** Governor Settings

Checking	g of slider	Full-load s	peed reg	gulation		Idle spec	-		$\sim$	Torque control		
PRG che rev/min	Control rod travel	Setting por rev/min	Control rod travel mm	Control rad travel	rev/min	Setting prev/min	Control red travel		Control rod travel mm		Control rod travel mm	
550	15,6-16,4	550	16,0	1	1055-1070	Į.	7,2	100	mind.8,7	905	10,1-10,3 10,2 <b>-</b> 10,5	
1200	0,3-1,0			4,0	1080-1110			250 330-	7,1-7,3 370=2,0	710	10,7 <b>-</b> 10,9	
										<u></u>		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3	Fuel delive	ery characteristics	Starting for Idle spee	uel delivery d   Confrei
rev/min 1	cm ³ /-1009 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min	rad travel cm ³ /1000 strokes / mm 7
600	98,0 - 100,0 (96,0 - 102,0)		1000	93,0 - 97,0 (91,0 - 99,0)	100	170,0 - 210,0 19,5 - 21,0 mm RW
					250	9,0 - 13,0

Checking values in brackets

11.82

**BOSCH** 

restoil-ISO 41:13

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11.1 g 2

2. Edition:

Ξn

PES 6 A 95 D 410 LS2485 RQ 250/1050 AB965DL

supersed N A N

company D 2566 MR/MFR

engine: 172 kW (234 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

1,50-1,60 Port closing at prestroke (1,45-1,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1050	11,7+0,1	12,3 - 12,5	0,3 (0,6)			
250	6,5-6,7	1,3 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

	PRG check Control rod		Control Cont		$\sim$		Idle speed regula Setting point Control		ation   Test specifications   5		Torque control  Control rod	
rev/min	travel mm 2	rev/min 3	rod travel mm 4	rod travel mm 5	rev/min 6	rev/min 7	rod travel rnm 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12	
600	15,6-16,4	600	16,0	_	1095-1110 1145-1175 O - 1,0	250	6,6	100 250 365- 500	min. 8,0 6,5-6,7 425=2,0 0-1			

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	cm ³ /1000 strokes:/ mm 7	
1050	123,0-125,0 (121,0-127,0)		500	111, 5-115, 5 (109, 5-117, 5)	100	120,0 - 130,0 = 13,7-14,3 mm RW	
					250	6,0 mm RW	
	,						

Checking values in brackets

11:82

### Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 CAS 5,5 a

1. Edition

En

PES 4 A 95 D 420 LS 3023 US-RSV 375-1100 A 2 B 2078 R

Supersede CASE Company A-336 BDT

engine

90 kW (122 PS)

Inlet pressure 1.5 bar overflow valve 9 681 273 009

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

Testoil-ISO 4113

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery  cm ¹ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm-//100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	11,9-12,1	0,3(0,6)			
375	5,6-5,7	1,6-2,1	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

14 7 2	r rated speed Control rod travel mm		Intermed	nate rated	speed 6	Control- lever deflection in degrees 7		rated speed Control rod travel mm	(3)	rque control Control rod travel mm
100se	800 X =	0,3-1,0	-	•	-	ca. 21	375 100 375	5,1 min. 19, 5,5-5,7	1100 750 600	11,4-11,7
ca.45	10,1 4,0 1250	1140-1150 1165-1195 0,3-1,7					460-520 600			,/

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	il-load stop	Rotational- speed limitat	(3a) Fu	el delivery aracteristics	Starting f	uel delivery 5	4a Idle stop	
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note changed to) rev/min	rev/min	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	119,0-121,0 (117,0-123,0)	1140-1150*	750 600	123,0-129,0 (121,0-131,0) max. 125,5 (max. 127,5)	100	138,0-144 = ca. 17,0 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7a

1. Edition

PE6P110A721RS 3102

RQV 250-1200 PA 257-1

supersedes

company:Steyr

engine: WD 615.84

180 kW (245 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1200	12,3+0,	1 13,7-13,9	0,4(0,8			
250	7,2-7,4	1,3-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ______.

#### **B.** Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Sliding s	eeve travel
deflection		Control rod (la travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
	rod travel mm	mm rev/min (2a)	of control lever	rev/min	mm 4	of control lever	rev/min	тт 3	reviinin	mm
<b>]</b> 1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	_	_	-	ca.11	100	min.8,8	200	0,5-0,7
			-				250	17,2-7,4	530	3,5-3,7
ca. 46	11,3	1240-1250 1300-1330					350-	410 =2,0	870	5,1-5,5
<b>.</b>	1450	0 -1,0	ŀ						1200	7,9
						<u>3a</u>				

Torque control travel a =

шm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Controi-rad Test oil terr rev/min	stop p. 40°C (104°F) 2	Rotational-speed (2b) timitation intermediate speed rev/min (4a)	high idle s	cm ³ /1000 strokes	idle switchir	•	Torque- travel rev/min	Control od travel mm
LDA 1200	- 0,7 bar 137,0-139,0 (134,0-142,0)	1240-1250*	LDA 700 LDA 700	144,0-148,0 (141,0-151,0) 0 bar		125,0-145,0	1200 500 1060 880	12,3+0

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

STE 9,7 a -2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS3102 + RQVPA 527-1	0,37	0,70 0 0,23	11,8 - 11,9 12,7 - 12,8 10,2 - 10,3 10,7 - 10,8
		•	

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 STE 9,7 b

1. Edition

PE6P110A721 RS 3101

Testoil-ISO 4113

ROV 250-1200 PA 413

supersedes

Steyr

company: engine:

WD 615.67 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

rev/min n		_	cm³/			
1 12	mm 2	cm³/100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1200	12,0+0,	16,2-16,4	0,4(0,8)			<u> </u>
250	5,8-6,0	1,2- 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

deflection	rev/min Control rod travel mm	Control rod travel mm rev/min	(18)	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever	rev/min	Control rod travel mm 3	Sliding si rev/min 10	mm
max.	1290	15,2-17	7,8	-	-	-	ca.11	100 250	min.7,5 5,8-6,0	200 530	0,6-0,8 3,2-3,8
ca.45		1240-12 1335-13 0 - 1						360-	420 = 2,0	870 1200	7,7
							(3a)				

Torque control travel a =

mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roa Test oil ter	d ston	Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	ery characteristics 5a peed 50	Starting I Idle sentable		travel	control 5 Control rod travel
rev/min	. •	rev/min 4a	rev/min	cm³/1000 strekes 5	revimin 6	cm ³ /1000 strokes 7	rev/mim 8	mm 9
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)	1240 -1250*	LDA 700 LDA 700	0,7 bar 165,0-169,0 (163,0-171,0) 0 bar 120,0-125,0 (118,0-127,0		240,0-270,0	880	12,0+0 12,5+0, 12,2+0, 12,0+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

STE 9,7 b

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 3101 + RQV PA 413	0,53	0,70 0 0,38	11,5 - 11,6 12,0 - 12,1 9,8 - 9,9 10,2 - 10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 KHD 6,1 e 5. Edition

En

PES 6 A 95 D 410 RS 2471

RSV 325-1150 A 8 B 707 DL

supersed 9.82 company KHD engine BF 6L 913C 132 kW 2300 min -1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

(1,85 - 2,05 )
Port closing at prestroke 1,90 - 2,00

Festoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
150	11,8	10,6 - 10,8	0,3 (0,6)			
325	+ 0,1 7,1-7,3	0,9,- 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in [

#### B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	(4)	Lowe	rated speed	1(3)	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 21	325	6,7	1150	11,8-11,9
	x =	4,7					100	min. 19	500	11,8-12,0
ca. 55		200=10,8 265= 4,0 ,3-1,7					325 590-6	7,1-7,3 50 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2b) Ful	II-load stop	6 Retational-speed limitat 3a Fuel delivery characteristics			Starting f	uel delivery 5	4a Idle stop	
f	mp. 40°C (104°F) cm³/1000 strokes 2	Note: charged to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	0,5 bar 105,0 - 107,0 103,0 - 109,0)	1190-1200*	LDA 850	0,5 bar 97,5 - 101,5 (95,5 - 103,5)	100	125 - 135	325	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

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Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2471 +A 8 B 707 DL	0,07	0,50 0,28 0	10,1-10,3 11,8-11,9 11,5-11,6 9,9-10,1

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MWM 6,2 c 1

1. Edition

En

PES 6 A 90 D 320/3 RS 2464-1

RSV 325-1200 AOB 2181 R

company MWM
TD 226-6
107 kW (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at prestroke

**Festoil-ISO 4113** 

(2,10-2,30)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
speed rev/min 1	rnan 2	cm ¹ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ¹ /100 strokes 3	mm 6
1200	10,6+0,1	7,5-7,6	0,3 (0,45)			
325	7,4-7,6	0,5-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in T

#### **B. Governor Settings**

14 9 3	rated speed Control rod travel mm	rev/min  Control rod travel  mm rev/min	Intermed	nate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	1 3 1	que control Control rod travel mm
loose	800 x =	0,3-1,0 3,75	-	-	-	ca. 20	325 325	7,0 7,4-7,6	1180 500	10,6-10,7 11,5-11,6
ca. 46	9,6 4,0 1460	1240-1250 1300-1330 0,3-1,7				,	520-58	30=2,0	875	11,0-11,2

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

(25) Fu	II-load stop	6 Rotational- speed limitat	11.7211	iel delivery paracteristics	Starting f	uel delivery 5	(4a) ld!	e stop
Test oil te rev/min 1	cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1200	0,7 bar 74,5-75,5 (72,5-77,5)	1240-1250*	LDA 500	0 bar 59,5-60,5 57,5-62,5)	100	113,0-123, = 19,5- 21,5 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

**BOSCH** 

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Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			dtion
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2464-1 +AOB 2181 R	0,14	0,70 0 0,13	11,3-11,4 11,5-11,6 11,0-11,1 11,1-11,3

Notes

(1) when n =

rev/min and gauge pressure =

**Testoil-ISO 4113** 

## Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11.0 m 2. Edition

RQV 250-1100 PA 184 R (1) PE 6 P 110 A 720 RS 3006

.. PA 242 R (2)

supersedes

companyScania engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4 mm (from BDC) (3.25-3.45)

Rotational speed rav/min	Control red travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0+0,1	13,3-14.1	0,6			2,5 [±] 0,1 ** (max.2,2-2,9)
600	9,0-9,1 12.0+0,1 15.0+0,1	13,1-14,6 19,9-21,6				(11147.2.,2.2.)
200	9,0-9,1	4,4-5.4				

Adjust the fuel delivery from each outlet according to the values in

**In the case of greater dispersion alter the delivery-valve spring pre-tension

### B. Governor Settings

RQV..PA 184 R (1)

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	Control	Control rod (1a)	denection		Control rod travel	Degree of deflection		Control rod travel		1
	rod travel	mm rev/min (2a)	of control lever	rey/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1150 1440	16,0-19.0 0	-	-	-	ca.10	100 250	4,8-6,4	1170	8,3
Ca. 62	1100 1200 1300	15,0-17,4 8,4-12,3 1,0-6.4					400 550 680	2,5-3,8 1,0-2,4 0		
	1400	0				<b>3</b>				

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-foad de Control-roo Test oil ten rev/min	1 stop np. 40°C (104°F) 2	Rotational-speed 2b fuel high intermediate speed rev/min 48 rev/m		peed (56)	ldie switchir		Torque-control 5 travel Control ro travel rev/min mm	
1	2	3	4	5	6	7	8	9
LDA 1100	0.7 bar 173.9-175,0 (171.0-177,0)	1135-1145*	LDA 600 LDA 500	l U Dar	isper	190,0-240.0 10,0-12,0 sion max. 2,0 29,0-34.0 sionmax. 4,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

deflection	rev/min Control rod travel	Control rod (1a) travel mm rev/min (2a)	Intermediate Degree of deflection of control lever	rev/min	Control rod travel	Lower rated Degree of deflection of control lever 7		Control rod travel		mm
ca. 66	1120 1200 1300 1410	15,0-17,6 9,2-13,6 1,0-7,6	-	-	-	ca. 10	150 250 400 500	6,5-8,0 3,6-6,1 1,1-2,4 0	1120	8,3
						(3a)				

Torque control travel a =

mm

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad de Control-rod Test oil tem	···· - · · /	Rotational-speed 2t limitation intermediate speed	high idle s	ISTICS	(58) (56)	idle switchin	g point	Torque-d travel	Control rod travel
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 stroke 5	es	rev/min 6	cm //1000 strakes 7	rev/min 8	mm 9
LDA 1100	0,7 bar 161,0-163,0 159,0-165,0)	1135-1145*	LDA 600 LDA 500	0,7 bar 160,5-16 (158,5-16 0 bar 133,0-13 (131,0-13	5,5) [ 7,0	1200	190,0-240,0 11,0-13,0 sion max. 2,0 29,0-34,0 rsion max. 4,0	Į.	

Checking values in brackets

* 1 mm less control rod travel than co: 2

# D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference XXXXXXXX mm
PE 6 PRS 3006 + RQVPA 184 R	0,43-0,46	0,20-0,24	0,1 1,3
PE 6 PRS 3006 + RQVPA 242 R	0,40-0,42	0,20-0,24	0,1 1,1
	·		

E

**Festoil-ISO 4113** 

KHD 6,1h WPP 001/4

4. Edition

PES 6 A 85 D 410 RS 2591

RS 325/1325 AOB 691 DL

9.82 supersedes

company

engine:

BF 6 L 913 - BW 124 kW(169 PS)

bei 2650 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

2,50-2,60 (2,45-2,65) Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/miß	mm 2	cm ³ /100 strokes	cm³/ 100 strokes 4	m <del>m</del> 2	cm ³ /100 strokes 3	mm 6
1325	12,8-12.	9 9,0 - 9,1	0,3(0,4	5)		
325	8,4-8,6	0,9 - 1,5	0,2(0,4	þ		
,						

Adjust the fuel delivery from each outlet according to the values in

**B.** Governor Settings

Vertical position  $=40^{\circ}$ VH=Control lever FH=Accelerator lever Horizontal position=40°

Upper Degree of deflection of control lever	rated speed	Control rod travel	Intermediate Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rated spe	Control rod travel	rev/min	que control Control rod travel mm	
1 1oose	800	0,3-1,0	4	5	6	FHca.2 VHmax.		8,5 min.10,0	1	12,8-12 12,8-12	1
VHva.53	1415-	1375=11,8 1445= 4,0 0,3-1,7					400-	425=6,0	850 500	12,9-13 12,9-13	

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	(5a) idle stop	
Test oil temp rev/min	cm ³ /1000 strckes	Note: changed to rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes 7		Control rod travei mm 9
LDA 1325	0,7 bar 90,5 - 91,5 (88,5 - 93,5)	1365-1375*	LDA 1000 LDA 350	0,7 bar 85,0 - 88,0 (83,0 - 90,0) 0,7 bar 83,5 - 86,5	100	104,0-114, = 17,8-18, mm RW Electromage	2	V
		LDA O bai	500	(81,5 - 88,5) 55,5 - 58,5 (53,5 - 60,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.32

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

•	XXXXXX	XXXX	
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure = b	ar mm (1) .
2591 +	691 DL 0,7	0,430 0,160 0	12,9 - 13,1 12,7 - 12,8 12,1 - 12,3 11,5 - 11,7

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps and Governors

40

WPF 001/4 KHD 6,1 a 1 2. Edition

En

PES 6 A 85 D 410/3 RS 2415

RS 325/1325 AOB 691 DL 709 DL supersedes 6.82

company: KHD

engine: BF6 L 913

Test RS governor according to WPP 001/4, KHD 1 c.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

1,9-2,0
Port closing at prestroke (1,85-2,05) mm (from BDC)

		1,03-2,037		····	<del></del>	~ <del>~</del>
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control salve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			
					•	
	1			<u> </u>	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm		Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-		325	6,5		11,4+0, 11,9+0,
٠.	X =	7,0					100 325	min.16,0 6,4-6,6		11,5+0,
ca.68	10,4 4,0 1600	1355-1365 1450-1480 0,3-1,7					500	3,4-4,0 1370=2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	pad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	nged to		rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm 9
LDA 1325	0,7 bar 76,0-77,0 (74,0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	15,0-16,0 mm RW	en.	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

E19

Test at n =

800

rev/min decreasing pressure - in bar gauge pressure

Pump/gavernor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2415	0,27		11,0 - 11,3
+AOB 691 DL +AOB 709 DL		0,70	11,9 - 12,1
		0,37	11,6 - 11,7
		0	10,7 - 10,9
	•		
,			

Notes:

(1) when n =

rev/min and gauge pressure =

# Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 11,6 n 4

1. Edition

PE 6 P 110 A 320 RS 407-1 RQ 275/1000 PA 641-1

supersedes company DAF engine DKCL

# Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel നങ 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	13,9-14,1	0,4(0,8)			
275	7,0-7,2	1,0-1,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che	· ( · /	Full-load s	oint	Test spec	cifications (4)	Idle spec Setting p	_		cifications 5	Torque o	control Control rod
rev/min	Control rod travel mm	rev/min	control rod travel mm 4	Centrel red travel rnm 5	rev/min 6	rev/min 7	red travel mm 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12
600	15,6-16,4	600	16,0		1045-1060 1105-1135 0 - 1,0	275	7,1	275	min. 8,6 7,0-7,2 385=2,0	600 1000 815 985	12,3+0,1 11,1+0,2 12,0+0,2 11,3+0,4
Torque	control travel	<u></u>	0,6	L		1	104	5-106	00 min -1	L	1 mm less contro

on flyweight assembly dimension a =

Speed regulation: At

rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel delive	ery characteristics	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes/ mm 7	
LDA 600	0,5 bar 139,0-141,0 (136,0-144,0)	-	LDA 1000	0,5 bar 114,5-119,5 (111,5-122,5)	100	245,0-285,0 = 19,5-21,0 mm RW	
			LDA 600	0 bar 136,5-139,5 (133,5-142,5)			

Checking values in brackets

12.82

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference mm (1) .
PE 6 P RS 407-1 + RQ PA 641-1	0,28	0,50	12,2-12,3 12,3-12,4 12,1-12,3

Notes:

(1) when n =

rev/min and gauge pressure =

# Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 12,7 d

6. Edition

estoil-150 4113

PE 8 MW 100/720 LS 1010 RQV 300-1150 MW 23 Komb. 0 403 548 002

supersed 4,82 company KHD

engine: BF 8 L 413 F 212 kW (288 PS)

2100 min

bzw. 206 kW

 $= 2300 \, \text{min}^{-1}$ 

(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (	(3,05-3,25)	mm (from BDC)	RW 9.0 -	12.0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
750	12,2 ^{+U} ,	13,1 - 13,3	0,35(0,6)			
300	6,3-6,	1,25- 1,65	0,35(0,55	)		
500	9,9-10,		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed		Intermediate	rated sp	ed	Lower rated	speed	1 3	Sliding sl	eeve travel
	rev/min Control	Control rod (1a)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
of control	rod travel		of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1180	15,2-17,8		}		ca. 18	100	min.7,8		
ļ	1400	0 - 1,0					300	¹ 6,3-6,5		
			4							
ca. 63	9,2 4,0	1160-1170 1235-1265				39	430-	490 = 2,0		

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

		limitation intermediate speed	high idle s	rery characteristics 5a peed 5b cm³/1000 strokes	Starting fuel delivery 6 Idle switching point rev/min cm ³ /1000 strokes		Torque-control (travel Control travel rev/min mm	
rev/min	2	3	4	5	6	7	8	9
LDA 750	0,74 bar 131,0-133,0 (129,0-135,0)	1160 - 1170*	LDA 500	0 bar 87,5 - 89,5 (85,5 - 91,5)		136,5-146,5 133,5-149,5) 230 (80-250)	750   050   150	12,2+0, 11.2+0, 10,2+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1010 +	0,16		10,3 - 10,5
MW 23		0,5	11,8 - 11,9
		0,74	12,2 - 12,3
		0	9,9 - 10,0
	·		

Notes:

(1) when n =

rev/min and gauge pressure =

# Test Specifications Fuel Injection Pumps (1) WPP 001/4 0MB 8.1 c1 and Governors

1. Edition

PES 6 MW 100/720 RS 1012	RQV 425-1100 MW 35
0 403 446 126	•
1 - 5 - 3 - 6 - 2 - 4	
0 - 60 - 120 - 180 - 240 -	300 = 0,50 (0,75)

companyOM-Brescia 8365.25.522 engine: 112 KW (152 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings 2,90 - 3,00

Rotational speed   Control rod travel		Fuel delivery  Cm³/100 strokes  Difference  cm³/ 100 strokes		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	mm 2	3	mm 6
1100	10,2+0,1	8,15-8,35	0,35(0,6)			
425	5,8-6,0	1,05-1,45	0,35(0,55	)		
700	11,1+0,1		0,5 (0,7)			
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	Upper rated speed Degree of rev/min Control rod			1_ 1 1			speed	Sliding sleeve travel		
deflection of control	Control rod travel	travel	deflection	rev/min	travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	( <del>)</del>
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,	8 -	-	_	ca. 14	425	5,8-6,0		
	1300	0 - 1,	q				100	min.7,5		
ca. 48	9,2	1140-1150					470-	530= 2.0		
	4,0	1185-1215				<b>3</b> a				

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		Rotational-speed 2b Imitation intermediate speed	Fuel delin high idle s	rery characteristics (5e) peed (50)	Starting Idle switchir		Torque- travel	control 5
rev/min	c/h³/1000 strokes	rey/min 4a	rev/min	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	travei mm
<u> </u>	2	3	4	5	6	7	8	9 +0,1
LDA	0,5 bar	·	LDA	0,5 bar			700	11,1
1100	81,5-83,5	1140-1150*	700	84,5 - 88,5	100	max. 19 RW		
	(79,5-85,5)		LDA 500 •	(82,5-90,5) 0 bar 67,5 - 69,5 (65,5 - 71,5)	100-	min. 160,0 220 (80-240)	1000	10,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference mm (1)
RS 1012 + RQV MW 35	0,25	0 <b>,</b> 5 0	10,9 - 11,0 11,1 - 11,2 10,6 - 10,7

Notes

(1) when n =

rev/min and gauge pressure =

estoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 10,0 o3
1. Edition

1

PE 6 P 110 A 320 RS 3080-1

ROV 250-1025 PA 589

supersedes -

company: Volvo

engine:

TD 100 FA

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1 (2,45-3,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed	•		Intermediate	rated sp	eed		Lower rated	speed			Sliding sleeve travel	
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min	(2a)	Degree of deflection of control		Contro travel	l rod	Degree of deflection of control		Control re travel			1
1	2	3	<b>(4)</b>	lever 4	rev/min 5	mm 6	•	lever 7	rev/min	mm 9	(3)	rev/min 10	mm 11
max.	1090	15,2-1	7,8	-	-		_	ca. 8	100	min.5	,6	200	0,7-0,9
ca. 64	11,7								250	4,0-	4,2	475 660	3,9-4,5
	4,0 1300	0 -	1,0						305-	365 =	2,0	bis 945	6,4-6,6
								(3a)				1025	7,6

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel delic high idle s	very characteristics 5a poeed 5b	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min 1	cm³/1000 strokes .	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm
LDA	0,75 bar	1085-1095*	LDA	0 bar	100	150,0-200,0		-
700	179,0-181,0 (176,0-184,0		1000 LDA 700	170,0-174,0 (167,0-177,0 0 bar 130,5-133,5 (127,5-136,	)	= 20,0-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 3080-1	0,42		12,0 - 12,1
+ RQV PA 589		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o2 1, Edition

En.

PE 6 P 110 A 320 RS 3080-1

RQV 250-1100 PA 589

supersedes-

company: Volvo

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Banches and Testers

#### **A. Fuel Injection Pump Settings**

Port closing at pres	troke	(2,95-3,15)	mm (from BDC)	= RW 9.0	- 12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			2,5 <u>+</u> 0,1
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)
	}					

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated:	speed	<b>.</b>		Intermediate	rated spe	eed			Lower	rated	speed			Slidings	leeve travel
Degree of deflection of control	rev/min Control rod travel	CEARS.	<b>ジ</b>	Degree of deflection of control		Contra travel	ol roc	t	Degre deflect of con	tion		Control travel	rod	Onding 3	1
lever	mm	rev/min (2	. 11	lever	rev/min	mm		<b>(4)</b>	lever	uoı	rev/min	mm	(3)	rev/min	mm
1	2	3		4	5	6		_	7		8	9		10	11
max.	1180	15,2-17,8	В	-	-		-		ca.	8	100	min.	5,6	200	0,7-0,9
ca. 63	11,7	1160-1170	0								250	4,0-	4,2		4,2-4,8
	4,0	1215-124	5				•				305-36	55 = 3	2,0	600 bis	6.4-6.6
! 	1350	0 - 1,0	0		•								1	040	0,4-0,0
									<b>3</b>				1	100	7,6

Torque control travel 5 *

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle :	rery characteristics (5a) speed (5b)	Starting idle switching	. 0	Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 700	0,75 bar 179,0-181,0 176,0-184,0)	1160-1170*	LDA 1000 LDA 700	0 bar 170,0-174,0 (167,0-177,0) 0 bar 130,5-133,5 (127,5-136,5)		150,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P RS 3080-1	0,42		12,0 - 12,1
+ RQV PA 589		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8
	•		

Notes

(1) when n =

rev/min and gauge pressure =

# **Test Specifications** Fuel Injection Pumps 1 WPP 001/4 KHD 12,7 c and Governors

4. Edition

PE 8 MW 100/720 LS 1010 RQV 900-1250 MW 31 Komb. 0 403 548 003

Festoil-ISU 4113

supersede9.82 company: KHD BF 8 L 413 F 235 kW (320 PS) 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings 3,10-3,20

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 stro		Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3		4	2	3	6
1250	12,2,0,1	13,0 -	13,2	0,35(0,6)			
300 850 500	6,4-6,6 12,7+0,1 9,7+0,1		1,65	0,35(0,55 0,5 (0,7) 0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in [

#### **B. Governor Settings**

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Si di a a	1
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding s	leeve travel
	mm .	rev/min (2a)	lever	rev/min	mm 4	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250 1500	15,2-17,8 0 - 1,0				ca. 15		min. 8,4 6,8-6,9 730=2,0		
ca. 65	11,2 4,0	i e		•		380-440 ③				

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) timitation intermediate speed	Fuel deliningh idle s	very characteristics (5e speed (5)	Idle	fuel delivery 6	Torque- travel	control 5
rev/min 1	cfh³/1000 strokes .	rev/min 4a 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	travel mm
LDA 1250	0,9 bar 130,0-132,0 (128,0-134,0)	1290-1300*	LDA 850 LDA 500	0,9 bar 130,5-134,5 (128,5-136,5) 0 bar 84,5- 86,5 (82,5- 88,5)	100 300	136,5-146,5 (133,5-149,5) 12,5-16,5 (9,0-18,0)		12,7+0 12,4+0 12,2+0 12,2+0

Checking values in brackets

* 1 mm less control rod travel than col. 2

#### **D. Adjustment Test for Manifold Pres**

#### npensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

	XXXXXX	<u> </u>	
Pump/governor	Setting	Measurement	diminution - Control rod travel- difference-
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
LS 1010 +	0,9 bar		12,7 - 12,8
MW 31		0,4	11,9 - 12,0
		0,3	10,4 - 10,6
	·		
			!

Notes

(1) when n =

rev/min and gauge pressure =

# Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 7,0 g

4. Edition

PE 6 P 110 A 320 RS 413

RQV 250-1200 PA 499

supersedas 81 company o Ivo

engine: TD 70 F

174 kW (237 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
700	12,4+0,1	12,7-12,9	0,4(0,8)			
250	5,2-5,4	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

deflection of control	rev/min Control rod travel mm	Control rod ta travel mm rev/min 2s	Intermediate Degree of deflection of control lever	rated sp	Control ro travel mm	od 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel	Stiding s	mm
max. ca. 62		15,2-17,8 1240-1250 1370-1400 0 - 1,0	-	-	-		ca. 9	100 250 440-5	min. 6,9 5,2-5,4 00 = 2,0	200 530	0,6-0,9 3,2-3,6 5,8-6,0 8,2

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir	$\mathbf{O}$	Torque- travel	control 5	
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm 9	
LDA 700	0,75 bar 127,0-129,0 (124,0-132,0		LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 = 20,0-21,0 mm RW		1	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

F9

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
·	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 413 + RQVPA 499	0,51	0,75 0 0,30	12,0-12,1 12,4-12,5 10,2-10,4 10,7-10,9

Notes.

(1) when n =

rev/min and gauge pressure =

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g 1
1. Edition

Ēn

PE 6 P 110 A 320 RS 413 Z

RQV 250-1200 PA 499

supersedes

company Volvo engine: TD 70 G

155 kW (210 PS)

# Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	(2	2,95-3,15)	mm (from BDC)		<del></del>	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	11,1+0,1	10,2-10,4	0,4(0,8)			
250	4,9-5,1	1,6-2,0	0,3(0,6)	·		
				] 		
		<u> </u>				
				1		

Adjust the fuel delivery from each outlet according to the values in

#### **S. Governor Settings**

Upper rated :	speed		Intermediate	e rated sp	eed	Lower rated	speed		Sliding	ieeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod trevel mm rev/min 28	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm 11
max. ca.59	10,1	15,2-17,8 1240-1250 1355-1385 0 - 1,0	-	-		ca. 9 300-410 3	100 250	min. 6,5 4,9-5,1	530	0,6-0,8 8,1-3,5 5,6-5,9 7,9

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	rery characteristics 5a	Idle	fuel delivery 8	Torque- travei	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 102,0-104,0 (99,0-107,0)		LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2 12.82

Test at n =

rev/min decreasing pressure – in bar gauge pressure

500

500		<del></del>	
Pump/governor	Setting  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PE 6 P RS 413	0,34		10 9 10 0
+ RQV PA 499	0,5%	0,75 0 0,27	10,8-10,9 11,1-11,2 9,8-9,9 10,3-10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

F12

# **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 o3 1. Edition

PE 6 P 120 A 320 RS 415-1

RSV 250-900 P 5/475

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

1 680 750 067

supersedes DAF DKS-E 1160 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump_Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm 2	cm //100 strokes	mm
				2	3	6
650	11,9+0,1	18,4 - 18,7	0,5(0,9)	<u> </u>		
250	6,7-6,9	1,9 - 2,3	0,8(1,2)			
	1					

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

1 Uppe	r rated speed		Interme	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 24	250	6,3	650	12,1-12,2
		= 5,0					250 395-455	6,7-6,9 = 2,0	900	11,4-11,6
ca. 46	10,4 4,0 1200	940-950 1025-1055 0,3-1,7		•						

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	Rotational-speed limitat			Starting t	tuel delivery 5	4a Idle stop	
rev/min	cm ³ /1000 strokes	changed to .) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7 °	rev/min 8	Control rod travel mm
LDA 650	0,7 bar 184,0-187,0 (181,0-190,0)	940-950*	LDA 900 LDA 600	0,7 bar 181,0-186,0 (178,0-189,0) 0 bar 129,0-132,0 (126,0-135,0)	100	310,0-350, = 19,5 - 21,0 mm RW	0 250	6,8

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Setting	Measurement	diminution Control rod travel- difference
Gauge pressure = bar	Gauge pressure = bar	mm (1) .
0,27		11,4 - 11,5
	0,70	11,9 - 12,0
	0	9,8 - 9,9
	0,12	10,0 - 10,6
	9 8	
	Gauge pressure = bar	Gauge pressure = bar  O,27  O,70  O,00  O,12

Notes

(1) when n =

rev/min and gauge pressure =

### **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 o 1 Edition

engine

En

PE 6 P 120 A 320 RS 415

RSV 250-900P5/475

8.81 supersedes

Values apply to

DAF company

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

1 680 750 067

DKS-1160 E1160 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,85-3,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	cm ¹ / 100 strokes	mm 2	cm://100 strokes	mm 6
650	11.9-12.0	18, 4 - 18,7	0,5 (0,9)			
250	6,7-6,9	1,9- 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

1 Uppe	rated speed		Interm	ediate rate	d speed	4)	Lower	rated speed	(3) To	rque contro!
Degree of deflection of control	travel	Control rod travel mm rev/min				Control- lever deflection	501/510	Control rod travel		Control rod travel
lever 1	2	3	4	5	6	in degrees	rev/min 8	mm 9	rev/min 10	11
100se	800 0,	3-1,0				ca.24	250	6,3	900	11,4-11,6
· ·	X =	5,75				ļ ]			650	12,1-12,2
ca.46	940-950	0 =10,5		•			250	6,7-6,9		
<b>2a</b>	1025-105 1200=0,						395-455	= 2,,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	Rotational- speed limitat	3a Fu	Fuel delivery characteristics		Starting fuel delivery 5 4a idle stop		
rev/min	cm ³ /1000 strokes	Note: changed to .) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
650	0,7 bar 184,0 - 187,0 (181,0 - 190,0)	940-950 <b>*</b>	900 LDA 600	0,7 bar  181,0-186,0 (178,0-189,0)  0 bar  129,0 - 132,0 (126,0 - 135,0)	100	310 - 350 = 19,5 - 21,0 mm RW	250	6,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n = 600 rev/min decreasing pressure – in bar gauge pressure — XXXXX

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	**************************************		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 415 m.	0,7		11,9-12,0
RSVP5/475		0,26	11,4-11,5
		0,12	10,0-10,6
		o	9,8-9,9
			·

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

WPP 001/4 KHD 1 g 3 2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168 L_{company} KHD

supersede 6.82

BF 4 L 913 T 66 kW (90 PS)_1

2300 min

DX 92 (1) Tractor

60 kW (82 PS) 2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

Tractor DX 86 (2)

Rotational speed	Control rod travel	Fuel delivery (1)	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	rnm .
1	2	3	4	2	3	6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45	10,6+0,	1 7,5-7,6	
325	7,7-7,9	1,0 - 1,6	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Port closing at prestroke

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	ed	(3) Tor	que control
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travei		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 26	325	7,3	1150	11,8+0,1
	X = 4	, 0					100	min. 19,	D 500	12,6+0,1
i	ŗ		•				325	7,7-7,9	875	12,0+0,B
ca.54	10,8 4,0 1475	1190-1200 1325-1355 0,3-1,7		•				Bo = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	Sa idi	e stop
Test oil tem rev/min 1	cn ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1150	82,0-8 3,0 (80,0-8 5, 0)	1190-1200*	800	74,5-77,5 (72,5-79,5)	100	108,5-118,5		_

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

B. Governor Settings

(1) Uppe	r rated speed		Interme	diate rated	speed	(4)	- Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	9 -	_	_	ca.26	325	7,0	1150	10,5÷0,1	
	X =	4,0					100	min.19,0	500	11,2+0,1	
ca.56		1220-1230					325	7,4-7,6	900	10,9+0,3	
23	4.0 1475	1325-1355 0,3-1,7					720-780	= 2,0			

C. Settings for Fuel Injection Pump with Fitted Governor

6	il-load stop emp. 40°C (104°F)	6 Rotational- speed limitat.		nel delivery naracteristics	Starting t	fuel delivery 5	(Control o		
rev/min 1	cm³/1000 strakes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm	
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,	5 -	-	

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

Degree of deflection of control lever	er rated speed Control rod travei mm	Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
			•						
23									

C. Settings for Fuel Injection Pump with Fitted Governor

U	ill-load stop	6 Rotational- speed limitat.		uel delivery naracteristics	Starting t	fuel delivery 5	4a idle stop		
Test oil te rev/min 1	cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
			<u> </u>						
			ŀ						
		·							
		İ							
		-						1	

Checking values in brackets En

* 1 mm less control rod travel than col. 2

estoil-ISO 4113

Test Specifications Fuel Injection Pumps 3 WPP 001/4 DAI 1,9 h and Governors

Edition

PES 4M 50 A 320 RS 14 ... RS 14 Z

EP/MN 60 M 12 d. M 13 d (See reverse side)

supersede 5.10.61

company: Daimler-Benz engine: OM 621.912

(190 D-55 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7-1,8

mm (from BDC) RW 18

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	15	2,9-3,4	0,2			
1000 1000 200	9 18 9	0,8-1,2 3,7-4,3 0,7-1,1				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	Leakage		Control limitatio breakav	n	Control	rod travel test	Auxiliary auxiliary		Torque co	ontro
Torque control travel	Vacuum pressure drop	Time at least		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel		Control rod travel
mm	mm water col.	s	mmw.c.	mm	mm w c.	mm	mm.w.c.	mm	mmw.c.	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1 control rod trav rotational spe adjust breakaw cam adjustmer	eed 500 rev/mir vay (cols. 4-5) t	n. Dy means	s of shim: ans of sh	- * s* ums**	435 465 500 570	13,7* 8,2-13,3 3,1-9,5 0 - 3,6	-	-	150 250 350	14,9-15,0 14,5-14,8 13,8-14,2

* Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 X washers under the governor spring.

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw emp 40°C (104°	F)	Fuel deliv	very character	estics	idle (stoj idle (imb		Control road travel from full-load to
revimin 1	Vacuum mm wat. col 2	cm ³ /1000 strokes 3	rev/min	Vacuum mm wat, col 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col.	mm cm³/1000 strokes 8
2000	430-435	32,7-33,7	1600 1000	300 100	31,2-33,2 31,7-33,7		** Seite 3	
			250	cd.480	4,5-10,5 Dispersion max. 1,5		·	

Checking values in brackets

1.33

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F19

	Leakage		Control limitation breakay		Control	rod travel test	Auxiliary auxiliary		Torque c	ontrol
Torque control travel				Control rod travel	Vacuum	Control rod travel		Control rod travel	Vacuum	Control rod travel
шш	mm water col	s	mmwc	mm	mmwc	mm	mm w c	mm g	mmwc	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	el test (cols 4-		-	-	430 465 500 575	12,8* 7,2-12 2,0-8,2 0 - 2,5		-	150 250 350 430	14 - 14,1 13,6-13,9 12,9-13,3 12,8
adjust breakav cam adjustmer	eed 500 rev/mir vay (cols. 4–5) t nt (B 8–9 – C 7-1	ov means	of shim ans of sh	s* ums**						

^{*} Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 χ washers under the governor spring.

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp 40°C (104°	F)	Fuel deliv	very character	ristics	idle (stor idle (imb		Control road trave	
rev/min 1	Vacuum mm wat col 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat coi 5	cm ³ /1000 strokes	rev/min 7	Vacuum mm wat col.	idle mm cm ³ /1000 strokes 8	
2000	430-435	29,7-30,7	1600 1000	300 100	28,2-30,2 28,7-30,7		** Seite 3		
			250	ca. 480	4,5-10,5 Dispersion max. 1,5				

B. Governor Settings

	Leakage		Control limitation breaka		Control	rod travel test	Auxiliary auxiliary		Torque co	ontroi
Torque Control travel	Vacuum pressure drop	Time at least		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
LLI LLI	mm water col	s	mmw c	mm	mm w c	mm	mm w c	mm	mm w c.	mm
1	2	3	4	5	6	7	8	9	10	11
i	•									
rotational spe adjust breakaw	el test (cols 4- eed 500 rev/min vay (cols, 4-5) b at (3 8-9 - C 7-8	n ov means	of shims	s* ums**						

C. Settings for Fuel Injection Pump with Fitted Governor

rev/min	Vacuum mm wat col	mm cm /1000 strokes
		8

** Setting the idle speed stop

At $n=500\,\mathrm{min^{-2}}$ and with the governor stop cam switched off, bring the control rod into full-load position by increasing the water column to $430-435\,\mathrm{mm}$ (maintain exactly) and measure the control-rod travel reached. Increase the water column further until the control rod has adjusted itself to 3 mm less control-rod travel than when measured in full-load position at a water column of $430-435\,\mathrm{mm}$. In this position slowly push the stop cam through to its final position and at the same time observe the control rod.

If the spring retainer is correctly set, the control rod should adjust itself to a control-rod travel of 2 \pm 0.5 mm (with ... S 14 Z of 2.0 \pm 0.5 mm) less than when measured in full-load position at a water column of 430 - 435 mm. If the setting value is not reached or is exceeded, the position of the spring bolt in the spring retainer must be modified by inserting an appropriate number of washers between the spring-bolt collar and the retaining ring.

Please note

This modification causes the initial tension in the spring retainer to change. This initial tension should be brought up to the prescribed tension of 50 - 90 g again by inserting washers between the springs and the spring bolt base.

Test Specifications Fuel Injection Pumps

WPP 001/4 MWM 33,2 d

3. Edition

En

PE 6 P 120 A.. S 338.

EP/RSUV.. 330, 332, supersedes 10 3 78

PE 8 P 120 A.. V 10998, 10999

and Governors

MWM, Sudd. Bremsen

D/TD/TBD 601..

Complete type designations and instructions page 3.

D/TD/TBD 602..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

/+0.15_{\sqrt}

mm
6

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300-75o P9/332

Upper	Upper rated speed In			Intermediate rated speed			r rated spe	3 Torque control		
Degree of deflection of control		Control rod travel	Degree of deflection of control	ŀ	Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	750 775 800	16,0 11,5 6,0	withou	t aux	iliary spr	ca.31	300 50 300	8,0 19 - 21 7,7-8,3	730	0
5	780 820 890	9,5 - 11,5 3,0 - 5,0 0,3 - 1,0	with a	uxilia	ary spring		350 420	2,7-5,1 0 - 1	330	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to rev/min	rev/min cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
 1	2	3	4	5	6	7	8	9	
700	298,0 (14,1 mm RW)		,						
					}		1	./.	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

B. Governor Settings

300-900 P10 A330,

1) Upper rated speed			Intermediate rated speed			4 Lowe	r rated spe	3 Torque control		
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	rev/min	Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm		
] 1	2	3	4	5	6	7	8	9	10	11
ca.67	900 930 950	16,0 9,8 5,8	without	. auxi	liary spr	ca.27 ing	300 50 300	8,0 19 - 21 7,7-8,3	880	0
5	930 960 1040	8,5-11,6 3,0-5,8 0,3-1,0	with au	ıxilia	ry spring	·	350 440	2,6-5,0 0 - 1	330	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	(5a) Idle stop		
Test oil temp 40°C (104°F) rev/min		Note changed to rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
700	298,0 (14,1 mm RW)	910							
		·	6a)						

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed Degree of Control rod deflection travel					4 Lower Degree of deflection	r rated spe	3 Torque control Control rod travel				
of control lever	rev/min	mm	of control lever	rev/min	mm		of control lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	•	7	8	9	10	11
									•		
			1								
5											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad slop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	(5a) idle stop	
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min cm³/1000 strokes		rev/m _{in} cm³/1000 strokes 6 7			Control rod travel mm 9

INSTRUCTIONS

1. Complete type designations and engine designations

2. Test details

Test equipment according to W 400/305 En: T-nozzles and tubing 8 x 2 x 1000 with delivery-valve holder on pump M 16 x 1.5

Basic governor setting: vertical position = 35° control lever deflection.

3. Cam sequence and angular cam spacing

4. The full-load values given represent a basic setting which must be increased according to output and engine speed.

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 FAP 11,0 a

2. Edition

PE 6 P 110 A 320 RS 405

RQ 250/1100 PA 489

 ${\color{red} \text{supersedes} 10.81}$

company: FAP-Famos

engine: 2 FP 117 B 2 FP 121 B

2 FP 125 B 2 FP 202 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

188 kW (256 PS)

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-295)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	13,5 - 13,7	0,4(0,8)			
250	8,3-8,5	1,6 - 2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load s	•	_	cifications (4)	idle spec	•		cifications (5)	Torque o	control 3
rev/min 1	Control rod bavel mm	rev/min 3	Control red travel rrien 4	Control red travel	rev/min 6	rev/min 7	Control red travel	_	Control rod travel mm	rev/min 11	Control rod travel
700	15,6-16,4	700	16,0		1145-1160 1230-1250 0 - 1,0				min. 7, 5,9-6,1 =2,0 mm		13,0+0,1 13,0+0,2

Torque-control travel on flyweight assembly dimension a =

U mm

1145-1160 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

			•				
	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 36	Starting fuel delivery Idle speed Control		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:/ mm 7	
LDA 1100	0,7 bar 135,0 - 137,0 (132,0 - 140,0)		LDA 500	0 bar 98,0 - 100,0 (95,0 - 103,0)	100	170,0-190,0	

Checking values in brackets

12.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 405 mit PA 489	0,9	0 0,55 0,34	13,0 - 13,1 11,5 - 11,6 12,5 - 12,6 11,7 - 11,9
•			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 UNI 9,6 a 1 1. Edition

PES 6 P 110 A 320 RS 3105-1

RQ 275/1150 PA 653

company: Unic 8220-32

129 kW (176 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1150	12,0+0,1	12,8-13,0	0,4(0,8)			
275	5,5-5,7	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Control rod Central Central Control rod Control rod travel rad travel travel travel		g of slider	Full-load	-	•		idle spe	ed regula	ation		Torque o	control
rev/min 1 1 1 1 1 1 1 1 1	PRG che	(1)	Setting po		,	cifications (4)	Setting p		Test spe	()		Control tod (3
600 19,2-20,8 600 20,0 11,0 1195-1210 275 5,6 100 min. 7,1 5,5-5,7 345-385 = 2,0 1150 12,0+0,2	rev/min	travel	rev/min	lover ben	red travel	rev/min	rev/min	rod travel	rev/min	travel	•	travel
VH = max. 46° 4,0 1250-1280 275 5,5-5,7 600 12,0+0,2	1	2	3	4	5	6	7	8	9	10	11	12
		19,2-20,8 = max. 46	600	20,0				5,6	275	5,5-5,7		

Torque-control travel on flyweight assembly dimension a =

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil terr		Control rod stop 3a	Fuel deliv	ery characteristics (3b)	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:/ mm . 7	
LDA 1150	0,7 bar 128,0-130,0 (125,0-133,0)	-	LDA 400	0 bar 81,0-83,0 (78,0-86,0)	100	160,0-180,0	

Checking values in brackets

11.82

Tese at n =

500

 $\begin{array}{c} \text{decreasing} \\ \text{pressure - in bar gauge pressure} \end{array}$

D /201/2012	Setting	Measurement	diminution
Pump/governor	Setting	Wegge Chem	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
-			
PES 6 PRS 3105-1	0,19		11,5-11,6
+ RQPA 653		0,70	12,0-12,1
		0	10,1-10,2
		0,14	10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

G4

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP001/4STE9,7 **b** 1 1. Edition

PE6P110A721RS3101

RQ 300/1200 PA 412

superseries

company Steyr
engine WD615.67

206 kW (280 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1200	12,0+0,1	16.2-16.4	0,4(0,8)			
300	5,8-6,0	1,2-1,8	0,4(0,7)			
			İ			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider rck Control rod	Full-load Setting p		Test spe	cifications (4)	idle spe Setting	point		ecifications (5)	Torque	control 3
rev/min 1	travel	rev/min 3	nei travel mm	Control red travel rners 5	rev/min 6	rev/min 7	Central real travel rmm 8	rev/min 9	travel mm	rev/min	travel
600	15,6-16,4	600	16,0		1245-1260 1325-1355 0 - 1,0	300	5,9	300	min.7,5 5,8-6,0 45= 2,0	600 985	12,0-12,1 12,4-12,5 12,3-12,4 12,0-12,2

on flyweight assembly dimension a

0,25 _{mm}

Speed regulation: At

1 mm less contro rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever (mp. 40°C (104°F)	2	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting f	tuel delivery
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control red travel cm ³ /1000 strokes-/ mm
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)		•	LDA 700 LDA 700	0,7 bar 165,0-169,0 (163,0-171,0) 0 bar 120,0-122,0 (117,0-125,0)	100	240,0-270,0

Checking values in brackets

11.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) <u>.</u>
PE6PRS3101 + RQPA412	0,42	0,70 0 0,33	11,5-11,6 12,0-12,1 9,8-9,9 10,2-10,4

Notes

(1) when n -

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 b 2. Edition

En

PE 6 P 120 A 320 RS 377 RQV 250-1200 PA 425 R Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

companRVI engine: MIDS 062 030 158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 $\overline{\mathbb{O}}$

Testoil-ISO 4113

Port closing at pres	stroke f	2.8-2.9 2-76-2.05)	mm (from BDC)	= RW 9.0	- 12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1200	12.7+0.1	15,2-15,5	0,4 (0.9)			
275	5,4-5,6	1,1-1.7	0.4 (1.2)			
	C.					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	rated sp	eed		Lower rated	speed				
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control re travel	od _	Degree of deflection of control		Control ro	đ	Sliding s	leeve travel
lover 1	7000 2	revimin (29) 3	lever 4	rev/min 5	mm 6	•	lever	rev/min 8	mm 9	3	rev/min 10	mm 11
max.	1240	15,2-17.8	_	-	-		ca.15	100 275	min.7, 5,4-5	0	200	0,3-0,6 2,9-3,1
ca.56	11.7 4.0 :450						280-380		15,4-5,	6		2,9-3,1 4,8-5,0 8,0
							③					

Torque control travel a =

min

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten		Rotational-speed (26) smitation intermediate speed	Fuel deln high idle s	rery characteristics(5e)	Idle	fuel delivery 6	Torque- travei	Control rod
rev/min 1	cft ³ /1000 strokes 2	rev/min 40 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm¥1000 strokes	rev/min 8	travel
LDA 1200	0,7 bar 152,0-155,0 (149,0-158,0)	1240-1250*	LDA 350	0 bar 51.0-55.0 (48.0-53.0)	100	19,5-21,0 mm RW	-	-

Checking values in brackets

*1 mm less control rod travel then col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PE6PRS377	0,20		12,3-12,4
+ RQVPA 425 R		0,70	12,7-12,8
		0	11,1-11,2
		0,16	11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CHR 11,9 a 1
1. Edition

En

PE 6 P 110 A 720 RS 380

RQV 250-1100 PA 503

supersedes

company: Chrysler

ngine: BS36

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.75-2.95)	mm (from BDC)	RW 9.0-	12.0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Soring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	14,5+0,1	16,6-16,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			
·						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm cev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	Control rod travel rev/min mm 3	rev/min 11
max.		15,2-17,8 1140-1150	-	-	-	ca. 16	100 min.10,0 250 8,5-8,7	700 U,5 J,8 500 4,0-4,2
cu. 00		1260-1290 0-1,0				350-465	425-485 = 2,0	800 5,5-5,7 1100 7,9
						②		

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	ol-rod stop oil temp. 40°C (104°F) Rotational-speed (2b) limitation intermediate speed		Fuel delin high idle s	Fuel delivery characteristics (5a) high idle speed (5b)			elivery int	•	Torque- travel	Control Control roo
rev/min	cm ³ /1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	Cm ³ /	1000 strok	es	rev/min	travel mm
LDA 1100	0,7 bar 166,0-168,0 (163,0-171,0)	1140-1150*	LDA 1100	0 bar 127,0-131,0 (124,0-134,0			,5-21, RW	,0	8	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measuremo	ent	Control rod travel-	diminution difference
	Gauge pressure =	bar Gauge pre	ssure. = bar	mm (1)	•
PE6PRS380	0,50			14,0 -	14,1
+PA503		0	,70	14,5 -	14,6
		0		12,6 -	12,7
		0	,36	12,9 -	13,2
. •					

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 PP 001/4 MAN 11,1 q 8 and Governors

En

PES 6 P 120 A 720 LS 388

 \mathfrak{I}

RQV 250-1100 PA 508

supersedes"

MAN company:

D 2566 MKF

235 kW (320 PS)

Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.95-3.15)	mm (from BDC)	Zyl.	6 - RW 9.0-12.0) mm
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

eed		-	Intermediate	rated spe	ed	Lower rated	speed			Sliding el	leeve travel
Control od travel	trave!	_	of control		Control rod travel	Degree of deflection of control		Control ro travel			1
um	rev/min (2a)	lever	rev/min	mm (4	lever	rev/min	mm	(3)	rev/min	mm
	3		4	5	6	7	8	9		10	11
1100	15,2-17,8	8	-	-	-	ca.15					0,6-0,8
		_					E .			1 1	4,3-4,5
10,3	1140-115	0				1	400-4	160 = 2	,0		5,9-6,1
4.0	1225-125	5				1				1100	8,5
1400			•			ļ					
	•					(3a)	İ	•			:
1	100 10,3 4,0	nontrol travel dravel mm rev/min 3 100 15,2-17,0 10,3 1140-115 4,0 1225-125	nontrol travel day rev/min 2a 3 1140-1150 4,0 1225-1255	travel deffection of control lever 3 100 15,2-17,8 - 10,3 1140-1150 4,0 1225-1255	100 15,2-17,8 -	100 15,2-17,8 - -	100 15,2-17,8 -	Ca.15 Ca.1	Ca.15 Ca.1	travel travel travel deflection of control travel mm feet mm	100 15,2-17,8 -

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	limitation high idle speed 5b lidle switching po		ng point	travel	control 5 Control rod travel			
tev/min	cm³/1000 strokes	rev/min	164/mii	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	
LDA 750	1,0 bar 217,0-220,0	1140-1150*	LDA 500	0,34 bar	100	205,0-225,0		
LDA	214,0-223,0) 1,0 bar		LDA	145,0-150,0 (142,0-153,0 0 bar			900	13,1+0, 12,6+0, 11,8+0,
1100	180,0-185,0 (177,0-188,0)	·	500	101,0-104,0 (98,0-107,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 388 + RQV PA 508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

①

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP001/4MAN11,1 q 9

1. Edition

DOV 250 40

RQV 250-1050 PA 508

supersedes companyAN

Values apply to

PES6P120A720LS388

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

engine D2566 MK/319 235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 (2,95-3,15) mm (from BDC)Zy1. 6 - RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 190 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750 250	13,1+0,1 6,3-6,5	21,7-22,0	0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control red trave:	Sliding s	leeve travel
	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
'	12	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.11	100 250	min.7,1	200 480	
ca.63	10,3 4,0 1300	1090-1100 1175-1205 0 - 1,0						6,3-6,5 45 = 2,0	770 1050	
						3 a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-roo Test oil ten	d stop	Rotational-speed 2b limitation intermediate speed	Fuel deli high idle :	uel delivery characteristics (5a) Starting fue gh idle speed (5b) Idle switching		• •	Torque- travel	control 5
rev/min	cm ³ /1000 strokes . 2	rev/min 4e	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel
LDA 750 LDA 1050	1,0 bar 217,0-220,0 (214,0-223,0 1,0 bar 180,0-185,0 (177,0-188,0	1090-1100*	LDA 500 LDA 500	0,34 bar 145,0-150,0 (142,0-153,0) 0 bar 101,0-104,0 (98,0-107,0)		205,0-225,0	750 810	11,3+0, 13,1+0, 12,6+0, 11,6+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PLS388 +RQVPA508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

G14

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 10,0 q 2

1. Edition

PE 6 P 110 A 320 RS 3108 Z

ROV 250-1100 PA 649

supersedes

companNolvo engine: THD 100 EB

160 kW (218 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (2.95-3.15)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
700	10,5+0,1	12,1-12,3	0,4 (0,8)			2,5+0,1
250	5,0-5,2	3,2-3,6	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in _______.

B. Governor Settings

Testoil-ISO 4113

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed		Stidings	leeve travel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	Shumy s	
1.	mm	rev/min 2a	lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1175	15,2-17,8	-	-	-	ca. 10		min. 6,7 5,0-5,2		0,7 - 0,9 4,2-4,8
ca. 56	4,0	1140-1150 1205-1235						05=2,0	660 5is	6,4-6,6
	1350	0-1,0				3			1040 1100	7,3

Torque control travel a =_

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv	rery characteristics 5a	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min 1	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 700	0,75 bar 121,0-123,0 (118,0-126,0)	1140-1150*	LDA 700	0 bar 105,0-107,0 (102,0-110,0	100	160,0-190,0 =20,0-21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3108 Z + RQVPA 649	0,25	0,75 0 0,22	10,3-10,4 10,5-10,6 9,6-9,8 10,0-10,2

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CHR 11,9 a 1. Edition

En

PE 6 P 110 A 720 RS 380

RQV 250-1100 PA 434 R

supersedes companyChrysler engine: BSS36

Testoil-ISO 4113

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All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (2.75-2.95)	mm (from BDC)	= RW 9.0-	-12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	15,5+0,1	18,6-18,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			1

Adjust the fuel delivery from each outlet according to the values in _______.

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	anding a	1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.10,0		0,5-0,7
ca. 66	14,5 4,0 1400	1140-1150 1270-1320 0-1,0			:	350-465	250 425	8,5-8,7 485 = 2,0		4,0-4,2 5,5-5,7 7,9
						3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		intermediate speed	Fuel deliv	rery characteristics 5a	Starting fuel delivery 6 Idle switching point		Torque- travel	Control rod
rev/min	cm ³ /1000 strokes .	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	:ev/min	trav el mm
1	2	3	4	5	6	7 .	8	9
LDA 1100	0,9 bar 186,0-188,0 (183,0-191,0)	1140-1150*	LDA 1100	0 bar 134,0-138,0 (131,0-141,0)	100	19,5-21,0	1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

300			Y		
Pump/governor	Setting		Measurement		diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1) .
PE6PRS380	0,68				15,0 - 15,1
+PA434			0,90		15,5 - 15,6
			0	٠	13,2 - 13,3
			0,48		13,7 - 13,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WFP 001/4 VOL 10,0 q 1 1. Edition

<u>En</u>

PE 6 P 110 A 320 RS 3108 X

RQV 250-1100 PA 649

supersedes

companyVOlVO engine: THD 100 ED

203 kW (276 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	12,1+0,1	15,8-16,0	0,4 (0,8)			
250	5,0-5,2	3,2-3,6	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
Degree of deflection of control	rev/min Control	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	rod travel	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1175	15,2-17,8	-	-	-	ca.10	100 250	min.6,7 5.0-5.2	200 500	0,7-0,9 4,2-4,8
ca. 6 5	11,1 4,0 1350	1140-1150 1205-1235 0-1,0					340-4		660 bis 1040	6,4-6,6
	1330	0-1,0				3a			1100	7.3

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cfh³/1000 strokes		intermediate speed		idle switchir		Torque- travel	Control cod travel mm	
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 158,0-160,0 (155,0-163,0)	1140-1150*	LDA 700	0 bar 105,0-107,0 (102,0-110,0)		160,0-190,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS3108X	0,45		11,7 - 11,8
+ PA649		0,75	12,1 - 12,2
		0	9,3 - 9,4
		0,22	10,2 - 10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Distributor-type **Fuel-injection Pumps**

WPP 001/4 PEU 2,3 b1 1. Edition

VE 4/10 F 2125 R 62-2 0 460 404 018 VE 4/10 F 2125 R 62-4 0 460 404 022

supersedes companyPeugeot engine: XD 2 S

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/. Rot. speed Settings Charge-air press. Difference in 1. Settings rev/min bar (kgf/cm²) delivery cm³ 1.1 Timing device travel 1400 5,0-5,4 0,67 1.2 Supply pump pressure 1400 5,2-5,8 0,67 bar (kgf/cm²) 1.3 Full-load delivery without 500 33,5-34,5 cm³/1000 strokes Charge-air pressure Full-load delivery with 1250 48,7-49,7 cm³/1000 strokes 0,67 3,0 Charge-air pressure 1.4 Idle speed regulation 425 8,0-12,0 cm³/1000 strokes 0 2,5 1.5 Start 100 min. 50,0 cm³/1000 strokes 1.6 Full-load speed regulation cm³/1000 strokes 2425 17,0-23,0 0,67 1.7 Load-dependent start of delivery 1400 0,67

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device LDA=0 _s 67bar	n = rev/min mm	750 1,4-2,2(1,1-2,5)	1400 (4,5-5,9)	2000 7,8-8,6(7,5-8,9)	
2.2 Supply pump on a rev/min LDA=0,67bar bar (kgf/cm²)		400 2,1-2,7	2000 7,1-7,7		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2125 55-138(40-153)	

	CIN-710 S	33-130(40	J-133 <i>)</i>	55
2.3 Fuel deliveries		en <u>diametria de la companya de la companya de la companya de la companya de la companya de la companya de la compa</u>		
Speed control lever	Rot, speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2550 2425 2000 1250 * 750 500		(4,0-12,0) (16,0-24,0) (40,7-45,3) (46,9-51,5) (37,7-42,3) (31,0-37,0)	0,67 0,67 0,25
switch-off	2075	0		
kille stop	425 460-590	0	(6,0-14,0)	
End stop	300 420	min. 50 max. 40	·	
2.4 Solenoid	max. cut-in voltage	xxx min. rated voltage		

3. Dime	for assembly
Designation	and adjustment mm
К	Maß K 1
KF	5,7-5,9
MS	0,9-1,1
svs	max. 4,5
Хĸ	20,2-22,2
ХĪ	9,5-12,8

* Manifold-pressure compensator stroke = 3.5 mm.Correction at the adjusting nut. (46)

BOSCH

enst: Kfz-Ausrustung. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Garmany

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 4,5a

1. Edition

PES 4 MW 100/320 RS 1102 RQV 300-1150 MW 39-1 0403 444 103

supersedes

company/olvo-BM

engine: TD45 70 KW (95 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Eenches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) pl 0 - 12 0 m

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,3 ⁺⁰ ,1	7,4 - 7,6	0,35(0,6)			
300 1000	6,5-6,6 10,3 ⁺⁰ ,1	1,3 - 1,7 -	0,35(0,55 0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection	deflection Control travel of control rod travel mm			Degree of deflection of control			Lower rated speed Degree of deflection of control lever Control travel travel rev/min mm (3)			Sliding sleeve travel	
1	2	3	4	5	6	7_	_	9	10	11	
max.	1150 1400	15,2-17,8 0 - 1,0				ca. 11	300 100	5,6-5,7 min.7,3			
ca. 46	10,0	1190-1200 1230-1260		•		320-520 ③					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) Imitation intermediate speed	Fuel delin high idle :	very characteristics (5a) speed (5b)	Idle	fuel delivery 6	Torque- travel	control 5
rev/min 1	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travei mm
	74,0 - 76,0 (72,0 - 78,0)		1000	81,0 - 85,0 (79,0 - 87,0)	100	min. 140,0	8	9
					100-	1 220 (80–250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 WPP 001/4 VOL 4,5b and Governors

1. Edition

PES 4 MW 100/320 RS 1102

RQV 300-1100 MW 39

supersedes

company:Volvo-BM TD 45

85 KW (116 PS)

o 403 444 101

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2,80 - 2,90

A. Fuel Injection Pump Settings

Fort closing at pre	SUORE	<u> 2 75 - 2 95)</u>	mm (from BUC) RW 9,U - 12,U mm						
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)			
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm			
1	2	3	4	2	3	6			
700	11,0+0,	9,5 - 9,7	0,35(0,6)						

ı	1	2	3	4	2	3	6
	700	11,0+0,1	9,5 - 9,7	0,35(0,6)			
	300	5,6-5,7	0,95- 1,35	0,35(0,55)		
	1000	11,0+0,1	9,4 - 9,8	0,55(0,7)			•
۱							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	,	Intermediate	ntermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	Siding s	travel	
lever	mm 2	rev/min 2a	lever	rev/min 5	mm 4	of control lever	rev/min	mm ③	rev/min	mm	
	-	<u> </u>	 	-		<u> </u>	<u> </u>	9	10	11	
max.	1100	15,2 - 17	8			ca. 11	300	5,6-5,7			
	1350	0 - 1	0				100	min.7,2			
ca. 46	10,0	1140-1150									
	4,0	1190-1220		1		3a)	380-	440 = 2,0			

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) limitation intermediate speed	mediate speed (5b)		ldle	fuel delivery 6	Torque-control 5 travel	
rev/m in 1	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	tav/min	cm³/1000 strokes	rev/min	travel mm 9
700	95,0-97,0 (93,0-99,0)	1140-1150*	1000	94,0- 98,0 (92,0-100,0)		min. 140,0 220 (80-250)		_3

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82 Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.

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Test Specifications 0 Fuel Injection Pumps 1 and Governors

WPP 001/4 BAO 21,2 a

1. Edition

PE 8 P 130 A 520/4 RS 3085 RQV 400-750 PA 618-1

supersedes compan Baudou in

engine: 8 P 15 467 kW (635 PS)

1-2-4-5-6-3-7-8 je 45 ° $^{+}$ 0,5 ° ($^{+}$ 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,5-8,6	21,0-21,4	0,5(0,9)			
400	3,9-4,1	2,5 - 3,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in (

B. Governor Settings

Upper rated :	speed				Intermediate rated speed Lower rated speed			_	Slicting	sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel	mm	\preceq	Degree of deflection of control lever	re√/min	Control root travel		Decree of deflection of control		Control rod travel		1
1	mm 2	3		4	5	6	•	lever 7	rev/min 8	mm (3	rev/min 10	11
max.	830	15,2-17,	ε	-	~	-		ca. 16		min. 5,0		0 - 0,2
ca.48	7,5 4,0	750-755 775-785								3,9-4,1 85=2,0	455 bis 640	2,0
} 	900	0 - 1,0			•	[355-455				2.0-3.5
								3			750	5,1

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		intermediate speed		Starting Idle switchin	<u> </u>	TC:Code	control (5)	
rev/min	cm³/1000 strokes	røv/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	ravinos	⊮avel mm
1	2	3	4	5	6	7	8	9
700	210,0-214,0 (207,0-217,0)	750-755*	-	-	100	19,5-21,0 mm RW	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 n

2. Edition

VE 4/9 F 2500 R 16-5 R 16-5 P

4.82 VW

0 460 494 032 0 460 494 033 1,6 L

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm			see VDT-W-460/	
1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,6-5,0	mm		
1 2 Supply pump pressure	1500	4,5-5,1	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	415	7,0-11,0	cm ³ /1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	2450	14,0-20,0	cm ³ /1000 strokes		
1 7 Load-dependent start of delivery					

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device	n = rev/min mm	1000 2,4-3,2 (2,1-3,5)	1500 (4,1-5,5)	2100 7,0-7,8 (6,7-8,1)
2 2 Supply pump	a = rev/min ber (kgf/cm²)	400 1,7-2,3		2250 6,3-6,9
Overflow delivery	n = rev/min cm³/10 s	600 55-125 (40-140)		55-125 (40-140)

23 Fuel deliveries				3. Dimer	for asser
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adju
End stop	2540 2450	5,5-12,5 (5,0-13, (13,0-21	0)	K	3,2-
	2250	(13,0-21 28,8-30,8 (27,5-32 (31,2-35	(,1)	KF	5,7-
	1500	21,5-24,5 (20,0-26	5,0)	MS SVS	1,3- max.
				* FH	1,8-
switch-off				XK A	18,6
elect.	400	bei 2,5 V 0		8XL	9,1
idle stop	1200 600	max. 4,0 max. 6,0		Observations	
End stop	415 400 500	min. 18,0 max. 23,5		*operat	_
2.4 Solenoid	max. cut+in volta	e xxx min. 10 xrated voltage 12V.	V		

for assembly and adjustment

3,2-3,4 5,7-5,9 1,3-1,5 max. 4,8

1,8-2,4 18,6-20,6

9,1-12,8

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 a

3. Edition

VE 4/9 F 2400 R 66-3 R 66-7 supersedes6.82 company: VW engine:

0 460 494 052 0 460 494 075

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke	setting

mm

see	VD	T-W	460/
-----	----	-----	------

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1 2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		*
1 4 Idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2600	17,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	_			i İ

2. Test Specifications checking values in brackets ()						
2.1 Timing device	n = rev/min	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2400 7,0-7,6		
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)		2400 55-138 (40-153)		

	Cm3/10/S			
23 Fuel delivenes		Account of the second of the s		- [
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgt/cm²)	C
End stop	2700	2,5-9,5 (2,0-10,0)		
	2600	(10,0-18,0)		İ
	2400	27,5-29,5 (26,2-30,8)	·	-
	1500	(31,2-35,8)		
	600	21,5-24,5 (20,0-26,0)	•	
•				*
switch-off				
elect.	400	0		
kdle stop	1200	max. 5.0		
	650	max. 6.0		
	475	(4,0-12,0)		
End stop	400	min. 18,0		
	500	max. 23,5		
2.4 Solenoid	max. cut-in volt	* XXX		
	10XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	xxrated voltage 12V.		

3. Dimensions						
Designation	and adjustment mm					
K	3,2-3,4					
₹ F	5,7-5.9					
MS	1,3-1,5					
svs	max.2,5					
* FH	1,8-2,4					
XK*	18,4-20,4					
XFB	9,1-12,9					
Observations						
*operating						
stroke (K	SB)					

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 W 1. Edition

VE 4/9 F 2400 R 66-4 0 460 494 073

company VWW

engine. Audi 4000 USA

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. spæed rev/min	Settings	-	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9- 3,3	mm		
1.2 Supply pump pressure	1500	4,9- 5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0	cm³/1000 strokes		2,5(3-0)
Full-load delivery with	-	-	cm ³ /1000 strokes	1	
charge-air pressure 1.4 Idle speed regulation	475	7,0-11,0	cm³/1000 strokes	1 1 1	2,5(3,0)
1.5 Start	100	min. 38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	-	-			

z. lest spe	Cilications	checking values in brace	ckets ()			
2.1 Timing device	ww u = ten/win	1000 1,3-2,1(1,0-2	150 2 , 4) (2 , 4-		2400 6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7			2400 7,0-7,6	
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-1	53)	55-	2400 -138(40-153)	•
2.3 Fuel delivenes					3. Dimen	SIONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	mm
switch-off elect.	2700 2600 2400 1500 600	26,0-28,0 (24	0,0-18,0) 4,7-29,3) 3,2-32,8)		K KF MS SVS * FH AKK EKL	3,2-3,4 5,7-5,9 1,3-1,5 max. 2,5 1,8-2,4 18,4-20,4 10,4-12,-
End Stop	475 650 1200 400 500	max. 6,0 max. 4,0 min.13,5 max.19,5	(5,0-13,0)	-	Observations *operatin	•
2.4 Solenoid	max. cut-in voltag	• xxx min. ' ated voltage 1				

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 c

3. Edition

VE 4/9 F 2400 R 66-13

0 460 494 084

supersede6.82 company: VWW engine: Passat Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/ Pre-stroke setting

1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9- 3,3	mm		
1 2 Supply pump pressure	1500	4,9- 5,5	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm ³ /1000 strokes	* * * * * * * * * * * * * * * * * * *	2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		•
1 4 Idle speed regulation	450	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min.38,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1 7 Load-dependent start of delivery					

2. Test Specifications checking values in brackets ()						
2 1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2400 7,0-7,6		
Overflow delivery	n = rey/min cm ³ /10 s	500 55-138(40-153)		2400 55-138(40-153)		

2.3 Fuel delivenes				3. Dimer	1SiONS for assen
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2700 2600	2,5- 9,5 (2,0-10, (10,0-18,	(0)	K	3,2-
	2400	27,5-29,5 (26,2-30,		KF	5,7-
	1500 600	(31,2-35, 21,5-24,5 (20,0-26,		MS	1,3-
				svs	max
				* FH	1,8
				XX	18,4
switch-off mech. elektr.	2400 400	0		XIL	10,4
idle stop	1200 650	max. 7,0 max. 5,0		Observations	
	475	(4,0-12,0))	*operatin	ng
End stop	400 500	min. 18,0 max. 23,5		stroke ((KSB)
2.4 Solenoid	max. cut-in voi				

Designation	for assembly and adjustment mm			
ĸ	3,2-3,4			
KF	5,7-5,9			
MS	1,3-1,5			
svs	max.2,5			
* FH	1,8-2,4			
ХK	18,4-20,4			
XJ.	10,4-12,8			
Observations				
*operating				
stroke (KSB)				

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 K

2. Edition

VE 4/9 F 2250 R 79

R 79 P

supersedes6,82 company. VWW 086-T-1.6

0 460 494 064 0 460 494 065

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/... Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,3-3,7	mm	0,75	A. G.S. B. T.
1.2 Supply pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5-23,5	cm ³ /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5	cm ³ /1000 strokes	0,75	
1 4 idle speed regulation	475	7,0-11,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 38,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	ļ
1.7 Load-dependent start of delivery		•••			: :

2. Test Spe	cifications	checking values in brackets ()	
2 1 Timing device LDA=0,75 ba	u = lea/wiu	1000 1,3-2,1 (1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8 (5,7-7,1)
2.2 Supply pump LDA=0,75 ba	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2250 7 ,4- 8,0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-125 (40-140)		2250 55-125 (40-140)
2.3 Fuel deliveries		<u></u>	.,,,	3. Dimensions for assembly and adjustment

2.3 Fuel deliveries					3. Dimer	nsions	
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)	Designation	for assembly and adjustment mm	
End stop	2730-2870 2525 2250 1500 * 1000 600	0 38,0-40,0 32,5-33,5	(8,0-16,0) (36,7-41,3) (40,7-45,3) (30,0-36,0) (20,0-26,0)	0,75 0,75 0,3	K KF MS SVS	3,2-3,4 5,7-5,9 1,2-1,4 4,4	
switch-off elect.	400	0			žK ŽL	18,4-20,4 10,0-13,6	
idle stop End stop	1200 475 400 500	max. 5,0 min. 21 max. 29	(5,0-13,0)	-	* Manifold-pressure compensator strok = 4,0 mm. Correction at the		
2.4 Solenoid	max cut-in voltage te並必過過減XXXX		10,0 V Itage 12V.		adjusting nut.(46		

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz:Ausrestung. C. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Aljemagne par Robert Bosch GmbH.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6L 1

2. Edition

VE 4/9 F 2250 R 79-1

R 79-1 P

6.82

YWW 086 T-1,6-Autom.

0 460 494 100 0 460 494 101

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460V Pre-stroke setting

1. Settings	Rat speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	3,3 - 3,7	mm	0,75	
1 2 Supply pump pressure	1500	5,5 - 6,1	bar (kgt/cm²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	22,5-23,5	cm³/1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5	cm ³ /1000 strokes	0,75	
1 4 kile speed regulation	450	7,0-11,0	cm V1000 strokes	0	2,5(3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery				political desiration of the control	

z. rest spec	Jucauous	checking values in brackets ()			
2.1 Timing device	n = rev/min	1000	1500	2250	
LDA=0,75 ba	trim.	1,3-2,1 (1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-	7,1)
2.2 Supply pump	n = rev/min	1600		2250	
LDA=0,75 bar	bar (kgf/cm²)	3,3-3,9		7,4-8,0	
Overflow delivery	n = rev/men	600		2250	
	cm ³ /10 s	55-125 (40-140)		55-125 (40-	140)
2.3 Fuel delivenes		Wilder for interest and the second se	The second secon	3. Dimensions	mbly
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kg//cm²)	Designation and adju	
End stop	2730-2870	0	0,75	3,2-	3,4
	2525	(8,0-16,0)	0,75	K 5.7-	.s o
	2250	38,0-40,0 (36,7-41,3)	0,75		-
	1500	(40,7-45,3)	0.75	MS 1,2-	-
	+1000	32,5-33,5 (30,0-36,0)	0,3	svs max.	4,4
	600	(20,0-26,0)	0		
switchioff MeCh.	2250	0		AXK 18,4	-20,4
elektr.	400	0		BXL 10,4	1-12,7
idle stop	1200 450	max. 10,0 (5,0-13,0)	0	Observations + Manifold-pres	
End stop	400	min. 21		compensator	stroke
	500	max. 29		= 4,0 mm. Correction at	tho.
2.4 Solenoid	max. cut-in voltage	xxx min. 10,0 V rated voltage 12V.		adjusting nut	

Test Specifications
Distributor-type
Fuel-injection Pumps

40

WPP 001/4 VWW 1,6 i 3. Edition

n

VE 4/9 F 2250 R 78-1 (P) 0 460 404 098; 099

company: VWW

086T-1,6-Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,8-4,2	mm	0,75	
1 2 Supply pump pressure	1500	5,6-6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	23,5-24,5	cm ³ /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5-44,5	cm³/1000 strokes	0,75	
4 Idle speed regulation	450	7,0-11,0	cm ³ /1000 strokes	0	2,5 (3,0)
I 5 Start	100	min. 38,0	cm³/1000 strokes	0	
6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery					

2. Test Spec	ifications	checking values in brackets (•	
21 Timing device LDA=0,75 bar	n = rev/min	1000 1,8-2,6 (1,5-2,9)	1500 (3,3-4,7)	2250 6,1-6,9 (5,8-7,2)
22 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	1600 3,3-3,9		2250 7 , 4-8 , 0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-125 (40-140)		2250 55-125 (40-140)
23 Fuel delivenes	Access to a	. \$2.000		3. Dimensions tor assembly
C	. 0-4	1 Contrato and	100000000000000000000000000000000000000	and adjustment

2.3 Fuel delivenes					3. Di
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designati
End stop	2730-1870 2525 2250 1500 * 1000 600	0 38,5-40,5 33,5-34,5	(8,0-16,0) (37,2-41,8) (41,7-46,3) (31,0-37,0) (21,0-27,0)	0,75 0,75	K KF MS
mech.switch-off elektr.	2250 400	0			XK KL
idle stop End stop	1200 450 400 · 500	max. 10,0 min. 22 max. 30	(5,0-13,0)	0	Observati * Man com = 4
2.4 Solenoid	max. cut-in voltage 裕義本統裁案XXX				adj

	KF	5,7-5,9					
	MS	1,2-1,4					
	svs	max.4,4					
	X K	18,4-20,4					
	KL	10,4-12,7					
1							
	* Manifold-	pressure					
	compensator stroke						
	= 4,0 mm.						
	Correctio	n at the					
1	adjusting	nut.(46)					

3,2-3,4

BOSCH

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 h

3. Edition

VE 4/9 F 2250 R 78 0 460 494 062/063

supersedes 6.82 company: VWW

engine: 086T-1,6

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,8-4,2	mm	0,75	
1 2 Supply pump pressure	1500	5,6-6,1	bar (kgf/cm²)	0,75	1
1 3 Full-load delivery without charge-air pressure	600	23,5-24,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5	cm³/1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	475	7,0-11,0	cm³/1000 strokes	0	2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery	:	: 			

2. Test Spec	ifications	checking values in brackets ()		
2.1 Timing device LDA=0,75 bar	n = rev/min	1000 1,8-2,6 (1,5-2,9)	1500 (3,3-4,7)	2250 6,1-6,9	(5,8-7,2)
22Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2250 7,4- 8,0)
Overflow delivery	n = rev/m _i n cm³/10 s	55 - 125 (40-140)		2250 55 - 125 (4	10-140)
2.3 Fuel delivenes		<u> </u>	:	3. Dimens	Sions for assembly
Speed control lever	Rot speed	Fuel delivery	Charge-air press	Designation	and adjustment mm

2.3 Fuel delivenes				:	
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	i i
End stop	2730-1870 2525 2250 1500 * 1000 600	0 38,5-40,5 38,5-40,5 33,5-34,5	(8,0-16,0) (37,2-41,8) (41,7-46,3) (31,0-37,0) (21,0-27,0)	0,75 0,75 0,3	-
switch-off mech. elektr.	2250 400	0	,		
End stop	1200 475 400 500	max. 5,0 min. 22,0 max. 30,0	(5,0-13,0)		
2.4 Solenoid	max. cut-in voltage	xxx min.		<u> </u>	

)		
į	K	3,2-3,4
	KF	5,7-5,9
	MS	1,2-1,4
	svs	4,4
İ		
	A XK	18,4-20,4
	B XL	10,0-13,6
	Observations * Manifold-	pressure
-	compensat	or stroke
	= 4,0 mm.	
	Correctio	n at the
	adjusting	nut.(46)

H8

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 b 1. Edition

Overflow temperature 45° C

VE 4/10 F 2075 R 62 R 62-3

supersedes-

0 460 404 011

Pre-stroke setting

company: Peugeot engine: XD 2 S

0 460 404 021 All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	5,0- 5,4	mm	0,67	
1.2 Supply pump pressure	1400	5,2- 5,8	bar (kgf/cm²)	0,67	
1.3 Full-load delivery without charge-air pressure	500	33,5-34,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1250	48,7-49,7	cm ³ /1000 strokes	0,67	3,0
1.4 Idle speed regulation	375	12,0-16,0	cm³/1000 strokes	0	2,5
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2400	13,0-19,0	cm ³ /1000 strokes	0,67	
1.7 Load-dependent start of delivery	1400	_		0,67	

2. Test Spec	ifications	checking values in brackets ()		
2.1 Timing device LDA=0,67 bar	n = rev/min	750 1,4-2,2(1,1-2,5)	1400 (4,5-5,9)	2000 7,8-8,6(7,5-8,9)	
2.2 Supply pump n = rev/min bar (kgf/cm²) Overflow delivery n = rev/min cm³/10 s		400 2,1-2,7	2000 7,1-7,7		
		500 55-138(40-153)	2075 53) 55-138(40-153)		
2.3 Fuel deliveries				3. Dimensions	

		00 100(10 100)	33
2.3 Fuel deliveries			
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press.
End stop	2500 2400 2000 1250 * 750 500	3,0-9,0 (2,0-10,0) (12,0-20,0) 41,8-44,2 (40,7-45,3) (46,9-51,5) 39,5-40,5 (37,7-42,3) (31,0-37,0)	0,67 0,67 0,67 0,67 0,25
Switch-off	2075	0	
idle stop	375 420-480 1250	(10,0-18,0) 0 max. 2,0	
End stop	300 420	min. 50 max. 40	
2.4 Solenoid	max. cut-in voltag		

S.	Designation	and adjustment
	К	Maß K 1
	KF	5,7-5,9
	MS	0,9-1,1
	svs	max.4,6
1	XK	20,2-22,2
	ΚL	9,5-12,8
	Observations * Man if old-	pressure

compensator stroke = 3,5 mm.Correction at the adjusting nut. (46)

H9

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 f 2. Edition

VE 5/10 F 2250 L 80-1

0 460 405 023

supersedes 6.82 company: Audi 100

153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

0,2

 $_{mm}$ $^{+}$ 0,02 (0,04) mm

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm ³ /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm ³ /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm ³ /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-			

2. Test Spec	ifications	checking values in brackets ()	
21 Timing device	n = rev/min	850	1500 2250
LDA=0,75 bar	mm	1,1 - 1,9 (0,8 - 2,2)	(2,6 - 4,0) 5,4-6,2 (5,1-6,5)
22 Supply pump	n = rev/min	500	2250
LDA=0,75 bar	bar (kgf/cm²)	3,2 - 3,8	7,3 - 7,9
Overflow delivery	n = rev/min	500	2250
	cm ³ /10 s	55 - 138 (40 - 153)	55 - 138 (40 - 153)

2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2680-2820 2525 2250 1500 * 850 500		(8,0 - 16,0) (35,7- 40,4) (41,7- 46,3) (30,0- 36,0) (19,0- 25,0)	0,75 0,75 0,30
switch-off	2250	0		
elect.	400	0		
idle stop	375		(4,0 - 12,0)	
	450	max. 2,5		
End stop	400	min. 18		•
	500	max. 25		
2.4 Solenoid	max. cut-in voltage	L		

3. Dimen	ISIONS for assembly and adjustment mm
ĸ	_
KF	5,7-5,9
MS	1,7-1,9
svs	max.4,2
₹K	18,5 - 20
₹L	10,3 - 13

Manifold-pressure compensator stroke = 3,6 mm.Correction at the adjusting nut (46)

BOSCH

Test Specifications Distributor-type Fuel-injection Pumps

40

WPP 001/4 VWW 2,0 g 1. Edition

n

VE 5/10 F 2250 L 80

0 460 405 017

supersedes =

company: Audi 100 T

ngine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0.2

mm $\stackrel{+}{-}0,02 (0,04)$ mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm ³ /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm ³ /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	**	-			

2. Test Spec	ifications	checking values in brackets ()			
2.1 Timing device LDA=0,75 bar	n = rev/min	850 1,1-1,9 (0,8-2,2)	1500 (2,6-4,0)	2250 5,4 - 6,2 (5,1-6,5)		
2.2 Supply pump n = rev/min LDA=0,75 bar bar (kgf/cm²)		500 3,2 - 3,8		2250 7,3 - 7,9		
Overflow delivery	n = rev/min cm ³ /10 s	500 55 - 138 (40 - 153)		2250 55 - 138 (40 - 153		

2.3 Fuel deliveries					
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	
End stop	2680-2820 2525 2250 1500 * 850 500	0 37,0-39,0 32,5-33,5	(8,0-16,0 (35,7-40,3 (41,7-46,3 (30,0-36,0 (19,0-25,0	0,75 0,75 0,30	
switch-off elect.	400	0			
Idle stop	375		(4,0-12,0)		
	450	max. 2,5] .	
End stop	400	min. 18			
	500	max. 25			
2.4 Solenoid	max. cut-in voltage	<u> </u>		L	
	I			1	1

and adjustment
5,7 - 5,9
1,7 - 1,9
max. 4,2
18,5-20,5
10,3-13,2

Observations

*Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46)

H11

BOSCH

test voltage

Geschäftsbereich KH. Kundendienst. Kfx-Ausrüstung. C. 1980 by Robert Bosch GmbH, Postfac⊱ 50, D-7000 Stut∖gart 1. Printed in the Federal Republic of Germany. Imprimé en République Fédérale d'Aljerhagne par Robert Bosch GmbH.

Test Specifications Distributor-type Fuel-injection Pumps

WPP001/4 VWW 2,0 e1

1. Edition

VE 5/10 F 2250 L 81

0 460 405 019

supersedes

company:

engine:

Audi 100 T 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0.2

mm = 0.02 (0.04) mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1 - 3,5	ww	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 -22,5	cm ³ /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 -44,5	cm ³ /1000 strokes	0,75	
1.4 idle speed regulation	375	6,0 -10,0	cm ³ /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 -15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-			

2. Test Spec	ifications	checking values in brackets ()		
2.1 Timing device	n = rev/min	850	1500 2250	
LDA=0,75bar	mm	1,1-1,9(0,8-2,2)	(2,6-4,0) 5,4-6,2 (5,1-	6,5)
2 2 Supply pump	n = rev/min	500	2250	
LDA=0,75 bar	bar (kgf/cm²)	3,2 - 3,8	7,3 - 7,	9
Overflow delivery	n = rev/min	500	2250	
•	cm ³ /10 s	55 - 138 (40 - 153)	55 - 138 (40	- 153)

0 (8,0 - 16,0) 0-39,0(35,7- 40,3) (41,7- 46,3) 5-33,5(30,0-36,0) (19,0- 25,0)	0,75 0,75 0,75 0,75 0,30 0
0-39,0(35,7-40,3) (41,7-46,3) 5-33,5(30,0-36,0)	0,75 0,75 0,30
.0	
(4,0-12,0)	
2,5	
18	
25	
	18 25

3. Dimer	for assembly and adjustment
ĸ	_
KF	5,7 - 5,9
MS	1,7 - 1,9
svs	max. 4,2
XΚ	18,5-20,5
% L	10,3-13,2

Manifold-pressure compensator stroke = 3,6 mm. Correction at the

adjusting nut (46)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 e

2. Edition

VE 5/10 F 2250 L 81-1 0 460 405 025

supersedes 6.82 company Audi 100 T 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Testoil-ISO 4113

Pre-stroke setting 0,2 mm + 0.02 (0.04) mm			see VDT-W-460/		
1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1 2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm ³ /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm ³ /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm ³ /1000 strokes	0	
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0 - 15,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-			

2. Test Spec	ifications	checking values in brackets ()				
2.1 Timing device	n = rev/min	850 1500 2250 1,1 - 1,9 (0,8-2,2) (2,6-4,0) 5,4 - 6,2 (5,1 - 6,5)				
2.2 Supply pump LDA=0,75 bar	n ≈ rev/min bar (kgf/cm²)	500 3,2-3,8		2250 7,3 - 7,9		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55 -1 38 (40 -15 3)		
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery	Charge-air press.	3. Dimer	ISIONS for assembly and adjustment mm	
End stop	2680-2820 2525 2250 1500 * 850 500	0 (8,0-16,0) 37,0-39,0 (35,7-40,3) (41,7-46,3) 32,5-33,5 (30,0-36,0) (19,0-25,0)	0,75 0,75 0,75 0,75 0,30	K KF MS SVS	- 5,7 - 5,9 1,7 - 1,9 max. 4,2	
mechi. elektr.	2250 400	0 0		₹ K ₹ L	18,5-20,5 10,3-13,2	
Idle stop End stop	375 450 400 500	(4,0-12,0) max. 2,5 min. 18 max. 25		observations *Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46)		
2.4 Solenoid	max. cut-in voltage					

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.
C 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany 1.1—82 Imprime en République Fédérale d'Aljemagne par Robert Bosch GmbH.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5a 2. Edition

VE 4/9 F 2500 R 16-2 R 16-2 P supersedes4.82 company: VW

engine: EA 086/10

0 460 494 006

Overflow temperature 45° C

0 460 494 007 All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	3,4-3,8	mm ·		
1 2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm³/1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure			cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1 5 Start	÷ 100	min. 39,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2670	13,5-19,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timuna devua-		1000	1500		2000	
2.1 Timing device	n = rev/min	1,3-2,1 (1,0-2,4)	1500 (2,9 - 4,3)		2000 ,0 (5,9-7,3)	
2 2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,4 - 2,0			2200 ,9-6,5	
Overflow delivery	n = rev/min cm ³ /10 s	500 55 - 111 (40-126)			2500 1 (40-126	
2.3 Fuel delivenes	and the second s			3. Dimer	ISIONS for assembly and adjustment	
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge air press bar (kgf/cm²)	Designation	mm	
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) 25,7-27,7(24,4-29,0) (28,1-32,7) 17,9-20,9(15,4-22,4)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,3-1,5 max. 3,6 1,8-2,4 9,0-14,0	
switch-off elect.	400	bei 2,5 V 0		8	9,4-12,0	
idle stop	1200 415	max. 3,0 (4,0-12,0)		Observations	na etnoko	
End stop	400 500	min. 15,0 max. 20,0		lever.	ce control	
2.4 Solenoid	max. cut-in voltag	• xxxmin. 10 V		XK = 18,6-20,6 mm XL = 9,1-12,8 mm		

H14

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5b

2. Edition

VE 4/9 F 2500 R 16-4 (P) 0 460 494 030 (031)

supersedes4. 82 company: VW

engine: EA 086/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke	setting
------------	---------

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	·		cm ³ /1000 strokes		
1.4 Idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm³/1000 strokes		
1.6 Fult-load speed regulation	2670	13,5-19,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					•

2. Test Spe	cifications	checking values in brackets ()	9	
2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,9-4,3)	2200 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,4-2,0		2200 5,9-6,5
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111 (40-126)		2500 55-111 (40-126)
2.3 Fuel delivenes				3. Dimensions

	Cin-710 S	55-111 (40-120)		22-1	11 (40-120)
2.3 Fuel deliveries Speed control lever	Rot speed rev/min	Fuel delivery	Charge-air press. bar (kgf/cm²)	3. Dimer	for assembly and adjustment mm
switch-off elect.	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) 25,7-27,7 (24,4-29,0) (28,1-32,7) 17,9-20,9 (16,4-22,4) bei 2,5 V 0		K KF MS SVS * FH **	3,2-3,4 5,7-5,9 1,3-1,5 max. 3,6 1,8-2,4 9,0-14,0 9,4-12,6
End stop 2.4 Solenoid	1200 475 400 500	max. 3,0 (4,0-12,0) min. 15,0 max. 20,0 max. 20,0		(KSB)	

Test Specifications
Distributor-type
Fuel-injection Pumps

WPP 001/4 VWW 1,5 bl

Edition

En

VE 4/9 F 2500 R 16-3 R 16-3 P supersede4.82 company: VW engine: EA 086/10

0 460 494 028 0 460 494 029

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting ____ m

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm ³ /1000 strokes		
Full-load delivery with charge-air pressure		·	cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min	1000	1500	. —	2200
	mm	1000 1,3-2,1 (1,0-2,4)			,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,4-2,0			2200 9-6,5
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111 (40-126)			2500 1 (40-126
2.3 Fuel delivenes				3. Dimen	tor assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) 25,7-27,7(24,4-29,0) (28,1-32,7) 17,9-20,9(16,4-22,4)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,3-1,5 max, 3,6 1,8-2,4 9,0-14,0 9,4-12,6
switch-off elect.	400	bei 2,5 V 0		В	9,4-12,0
idle stop	1200 475	max. 3,0 (4,0-12,0)			ng stroke
End stop	400 500	min. 15,0 max. 20,0		(KSB) **Two-piece contro	
2.4 Solenoi	max. cut-in volta	go xxx min. 10 V crated voltage 12V.	XK = 18,6-20,6 m XL = 9,1-12,8 m		

BOSCH

Test Specifications
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 VWW 1,5 al

2. Edition

En

VE 4/9 F 2500 R 16 R 16 P

0 460 494 002 0 460 494 003 supersedes 82 company. W engine: EA 086/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-- mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Settings		Difference in delivery cm ³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		2,5 (3,0)
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm ³ /1000 strokes		
Full-load delivery with charge-air pressure			cm ³ /1000 strokes	·	
1.4 Idle speed regulation	415	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Spe	citications					
2.1 Timing device	n = rev/min mm	1000 1,3×2,1(1,0-2,4) (2	1500 2,9-4,3)		2000 (5,9-7,3)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,4-2,0			2200 , 9-6 , 5	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111 (40-126)			2500 (40-126)	
2.3 Fuel deliveries		-		3. Dimen	sions	
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment	
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5 25,7-27,7 (24,4-29,0) (28,1-32,7) 17,9-20,9 (15,4-22,4		K KF MS SVS * FH **	3,2-3,4 5,7-5,9 1,3-15, max. 3,6 1,8-2,4 9,0-14,0 9,4-12,0	
switch-off elect.	400	bei 2,5 V O		A B		
End Stop	1200 415 400 500	max. 3,0 (4,0-12,0) min. 15,0 max. 20,0		Observations * operating strok (KSB) **Two-piece contr lever. XK = 18,6-20,6 mm		
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V rated voltage 12V.	1	XL = 9,1-12,8 mm		

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Geschäftsbereich KM. Kundendienst. Kfz-Ausrustung.
C. 1980 by Robert Bosch GmbH, Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Aljemagne par Robert Bosch GmbH.

6

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

2. Test Specifications checking values in brackets (

n = rev/min

WPP 001/4 RVI 1. Edition

VE 4/12 F 1500 R 51-1

0 460 424 005

2.1 Timing device

companyRVI-Renault

engine: 720 S

Overflow temperature 45° C

1000

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/...

1500

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³	
1.1 Timing device travel	1000	3,3-3,7	mm	0,8	
1.2 Supply pump pressure	1000	4,7- 5,3	bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	500	63,0-64,0	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1000	86,5-87,5	cm³/1000 strokes	0,8	4,0
1.4 Idle speed regulation	325	14,0-20,0	cm³/1000 strokes	0	3,5
1.5 Start	100	min.100,0	cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	1650	17,0-23,0	cm³/1000 strakes	0,8	
1.7 Load-dependent start of delivery				_	-

LDA=0,8bar	mm	1,3-2,1(1	,0-2,4) (2,	8-4,2) 6,	1-6,9(5,8-7	,2)			
2.2 Supply pump LDA=0,8bar	n = rev/min bar (kgf/cm²)	300 1,7-2		1500 6,7-7,3					
Overflow delivery	n = rev/min cm ³ /10 s		500 55-138(40-153)			1500 55-138(40-153)			
2.3 Fuel deliveries		,			3. Dimer	1Sions for assembly			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment			
End stop	1700 1650 1600	max. 3,0	(15,0-25,0)	0,8 0,8	K	3,2-3,4			
	1500 1500 1000	53,0-61,0 83,0-86,0	(52,0-62,0) (81,5-87,5) (84,0-90,0)	0,8 0,8 0,8	MS KF	5,7-5,9 1,4-1,6			
	750 * 600 500	83,0-86,0 73,5-74,5	(81,5-87,5) (71,0-77,0) (59,7-67,3)	0,8 0,4 0	svs	max.6,0			
switch-off	1500	0			Rr XK	20,1-22,1			
Idle stop	400 325	max. 3,0	(12,0-22,0)		Observations 24V Pulli	ng electro-			
End stop	200 350	min.90,0 max.90,0			magnet Manifold- compensat = 4,5 mm				
2.4 Solenoid	max. cut-in volta	ge			Correction	n at the nut (46).			

750

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11.82

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 MAN 5,6 f 1. Edition

VE 6/11 F 1100 R 55-5 0 460 416 024

supersedescompany: MAN

engine: DO 226 ME

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting

0.2

 $_{mm}$ $^{\pm}$ 0.02 (0.04) mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	700	2,9- 3,3	mm		
1.2 Supply pump pressure	700	3,9-4,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	700	69,0-70,0	cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
† 4 Idle speed regulation	300	2,5-6,5	cm ³ /1000 strokes		3,5
1.5 Start	<i></i> 100	min. 90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	19,0-25,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min	500	700	900		
	mm	0,9-1,7 (0,6-2,0)	(2,4-3,8)	4,0-4,8 (3,7-5,1)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,9-3,5		1100 5,7-6,3		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1100 55-138 (40-153)		
2.3 Fuel delivenes		,		3. Dimen	SIONS for assembly	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment	
End stop	1330 1250	max. 1,5 (17,5-26,5)		K	_	
	1100	75,5-78,5 (74,3-79,7)		KF	5,7-5,9	
	900 700	73,5-76,5 (72,3-77,7)		· MS	1,2-1.4	
	500	(66,8-72,2) 64,0-68,0 (62,6-69,4)		svs	max. 6.0	
switch-off				X K	25,0-27,0	
	1100	0		XL	11,8-15,2	
idle stop	340	max. 1,5		Observations		
	300	(0-9,0)		Pulling (electro-	
End stop	380	min. 81	-	magnet		
:	450	max. 65				
2.4 Solenoid	max. cut-in voltag					
	test xoltegrex x x x	rated voltage 12V.				

H19

46

WPP 001/4 VWW 2,0c 2. Edition

En

VE 5/10 F 2400 L 35-6 (P) . 0 460 405 027; 028 supersedes6.82 company: VWW

engine: Audi 100

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

Testoil-ISO 4113

0,14

 $_{mm} \pm 0.02 (0.04)$

see VDT-W-460/...

1. Settings	Rot, speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1 2 Supply gump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes	5	
1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min.53,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kg²/cm²)	500 2,8-3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2400 55-138(40-153)
2.3 Fuel deliveries				3. Dimensions for assembly and adjustment

	cm ³ /10 s	55-138(40-153)		55-1	38(40-153)
2.3 Fuel delivenes	1			3. Dimer	1SiONS for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2650 2500	6,0-12,0 (5,0-13,0 (24,0-32,		ĸ	
	2400	29,5-31,5 (28,2-32,	8)	KF	5,7-5,9
	1400 750	(33,2-37, 24,5-27,5 (23,0-29,	8)	MS	1,7-1,9
	750	27,3 27,3 (23,0-23,		svs	max.3,0
				хк	18,5-20,5
	-			ΧL	9,0-12,5
Mech.switch-off	2400	0			
elektr.	400	0		В	
idle stop	500 375	max.3,0 (4,0-12,0)		Observations	
End stop	400 500	min. 16,0 max. 23,0	-	Mechanic control	al stop
2.4 Solenoid	max. cut-in volt	age xxx min. 10,0 V			

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WPP 001/4 VWW 1,6L 4. Edition

'n

VE 4/9 F 2400 R 66-12 (P) 0 460 494 082; 083

Testoil-ISO 4113

supersedes 7.82 company: VWW

engine: Rabbit Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0	cm ³ /1000 strokes		2,5(3,0
Full-load delivery with charge-air pressure		_	cm ³ /1000 strokes		4
1.4 Idle speed regulation	415	7,0-11,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min.38,0	cm³/1000 strokes	<u>.</u>	
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery		-			

2.1 Timing device	n = rev/min mm	1,3-2,1(1,0		1500 2,4-3,8)	2400 6,1-5,9(5,8-	7,2)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2	, 7	2400 7,0-7,6			
n = rev/min 500 cm ³ /10 s 55-138(40-123)				2400 55-138(40-1	23)		
2.3 Fuel deliveries			The second of th		3. Dimen	ISIONS for assembly and adjustment	
Speed Control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm	
End stop	2700 2600 2400 1500 600	2,5-9,5 26,0-28,0 17,5-20,5	(2,0-10,0) (10,0-18,0) (24,7-29,3) (28,2-32,8) (16,0-22,0)		K KF MS SVS *FH XK	3,2-3,4 5,7-5,9 1,3-1,5 max.2,5 1,8-2,4 18,4-20,4	
mech. elektr.	2400 400	0 0			χ̈́L	10,4-12,7	
Idle stop End stop	1200 600 415 400	max. 5,0 max. 6,0	(5,0-13,0)		Observations **operati	•	
2.4 Solenoid	500	max. 19,5	10,0 V				

Test Specifications Fuel Injection Pumps 2 PP 001/4

KHD 9,6g

and Governors

2. Edition

PE 6 MW 100/720 LS 1017

RQ 300/1250 MW 26

supersedes KHD

0 403 546 003

company: F6L413FX

150 kW (205 PS)

1 - 6 - 5 - 4 - 3 - 2 0 - 75 - 120 - 195 - 240 - 315 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,10-3,20 m. (3,05-3,25)

mm (from BDC) | = 9.0 - 12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250 350 700	12,0+0,1 8,2-8,4 12,7+0,1	1,25-1,65	0,5(0,6) 0,35(0,55 0,5(0,7))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che	g of slider ck 1	Full-load speed regulation Setting point Test specifications 4				Idle speed regulation Setting point Test specifications (5)				Torque o	control (3
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel rnm 4	Control rad travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel	rev/min	Control rod travel
600	19,2-20,8	600	20,0	11,6	1295-1310	300	8,3	100	min. 9,9	700	12,7-12,8
1450	0,0-1,0			4,0	1345-1375				8,2-8,4 440 = 2,0	ļ	12,4-12,5 12,0-12,1

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	on travel cm³/1000 strokes / mm 7	
1250	113,0-115,0 (111,0-117,0)		700	109,5-113,5 (107,5-115,5)	100	126,5-136,5 (123,5-139,5)	
					950	12,5- 16,5 (10,0- 19,0)	
					100-27	70 (80-300)	

Checking values in brackets

BOSCH

11.82

Test Specifications Fuel Injection Pumps 2 PP 001/4 MB 8,7 j and Governors

5. Edition

supersedes

company:

5.82 Daimler Benz

engine:

OM 360 A 155 kW (211 PS)

Komb. Nr. 0 403 546 001 1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300

Rotational speed

1250

300

750

rev/min

+ 0,50 (0,75)° lid for Bosch Fuel Injection Pump Test Benches and Testers

Fuel delivery

cm³/100 strokes

9,95-10,15

1,35- 1,75

C, Sp. 4-5

A. Fuel Injection Pump Settings 3,80-3,90

11,2+0,1

6,9-7,1

Port closing at prestroke 3,75-3,95)

travel

:ព៣

Control rod

PE 6 MW 100/720 RS 1007

RQ 300/1250 MW 12-1

mm (from BDC)

Difference

100 strokes

0,35(0,6)

0,35(0,55)

0,5(0,7)

mr

cm³/

RW 9.0-12.0 mm

(M 3,U-	IZ JU IIIII	
ontrol rod evel	Fuel delivery	Spring pre-tensioning (torque-control valve)
m	cm ³ /100 strokes 3	mm 6

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po	•	-		idle spee Setting p	_		cifications (5)	Torque o	control (3)
rev/min	Control rodi travel mm 2	rev/min 3	Control red travel rnm 4	Contral rad travel rnm 5	rev/min	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel
65	0 13,1-13,9	650	13,	5 10,2	1295-131	0 300	7,0	220	min. 9,0		
155	0 0,1- 1,0	 VH=	46°	4,0	1395-142	5		300 395 435	- 20		

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor co Test oil tem		Control rod stop 3a	Fuel delive	ery characteristics (3b)	Starting for	d Confres
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
1250	99,5 - 101,5 (97,5 - 103,5)	500	750	93,0 - 97,0 (91,0 - 99,0)	100*	70,0 - 75,0 (67,0 - 78,0)
			300	13,5 - 17,5 (11,0 - 20,0)		

Checking values in brackets

Geschaftsbereich KH. Kundendienst, Kfz-Ausrustung.

4. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale 3. Allemagne par Robert Bosch GmbH.

Testoil-ISO 4113

RVI

WPP 001/4 RVI 8,8 g 2 Edition:

PES 6 MW 100/320 RS 1016

RQ 750 MW 42

supersedés company

engine

MIDR 06.02-12 100 kW (136 PS)

0 403 446 130

1 - 5 - 3 - 6 - 2 - 4 0 - 60 - 120 - 180 - 240 - 300 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC) RW 9.0-12.0 mm

Rotational speed rev/min	Control rod travel n	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,	1 13,35-13,55	0,35(0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider ck (1)	Full-load : Setting po	•	•	cifications (4)	ldle sper Setting p	_		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control red travel mm 5	rev/min 6	rev/min 7	Control rod travel rmm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
				13,5 4,0	750-755 785-795				·		
785- 795	3,9-4,1										
850	0,0-1,0										

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

11.82

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	3 b	Starting f	d Contrai
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes		rev/min 6	rad travel cm ³ /1000 strokes:/ mm 7
700	133,5-135,5 (131,5-137,5)					100	19,0-21,0 RW min. 80,0

Checking values in brackets

BOSCH

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,7 c

1. Edition

PES 5 A 80 D 410/3 RS 2603

RS 325/1650 A 0 B 2087 L

supersedes-

company: KHD

engine: F 5 L 912 63 kW (85 PS) at 3300 min 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke	(1.85-2.05)	mm (from BDC)
	1.9 - 2.0	_

	Rotational speed rev/min 1		Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
		9,9-10,0 8,7-8,9	5,1 - 5,2 1,7 - 2,1	0,2(0,35)			
!							

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1	rated speed		Intermediate rated speed			4 Lowe	r rated spe	ed	(3) To	dne coupol
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control	ŀ	Control rod travel		Control rod travel
lever	revimin	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	•	approx.	325	8,8	_	-
	İ					18	100	min.13,6		
approx.)			l	325	8,7-8,9		
	8,9	1690-1700				1	550-	\$90 =2.0		<u> </u>
49 (5)	4,0	1740-1770	£.				600	max.1.8		•
	1900	0 - 1,0								
L						<u> </u>				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ad stop	6 Rotational- speed limitat.		of delivery practenstics	Starting idle	fuel delivery	Sa idle stop	
Test oil temp. 40°C (104°F) rev/min cm²/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	r ev/mi n 6	cm3/1000 strokes	rev/min	Control rod travel mm
1500	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-	-

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 2) MPP 001/4 DAF 11,6 t 2 and Governors

Edition

PE 6 P 100 A 320 RS 384

RO 225/1100 PA 574

supersedes 5.81

company: DAF

engine:

151 kW (205 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
3,2-3,3
Port closing at prestroke (3,15-3,35) m

mm (from BDC)

		(3,13-3,33)	***** (#*OH* BOC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
600	11,5+0	1 11,1-11,3	0,3(0,6)			
225	7,2-7,4	1,1 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking FRG che	ck (1)	Full-load s Setting po		-	cifications (4)	Idle spe	_		cifications (5)	Torque (\sim
rev/min 1	Control rod travel mm	rev/min 3	Control red travel mm 4	Control red travel rnrn 5	rev/min 6	rev/min 7	Control red travel		Control rod travel mm	rev/min	Control rod travel mm
550	15,6-16,4	550	16,0	9,8 4,0 1300	1170-120		7,3	225	min. 7,5 7,2-7,4 365=2,0	1050 800	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel on flyweight assembly dimension a =

0,25 mm

Speed regulation: At 1140-1155 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor (lelivery on control lever mp. 40°C (104°F)	Control rod stop 33	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed Contra		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Contrained travel cm ³ /1000 strokes:/ mm	
600	111,0-113,0 (109,0-115,0)	600	1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0 mm RW	

11.82

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 r

3. Edition

PE 6 P 100 A 320 RS 384

RQ 225/1100 PA 517

supersedel 0.80 company:DAF ∂KL.

151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.15-3.35)

mm (from BDC)

		(3,13-3,33)						
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6		
600	11,5+0,	11,0-11,2	0,3 (0,6)					
225	7,2-7,4	1,1-1,5	0,3 (0,5)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	g of slider ck Control rod travel mm 2	Full-load : Setting po rev/min 3	•	•	rev/min	Idle spec Setting p rev/min 7	point Control red travel	Test spe	cifications 5 Control rod travel mm	rev/min	Control rod (3)
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0-1,0		7,3	225		600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2
	ontrol travel ght assembly dimer	nsion a =	0,25	mm	Spe	eed regula	_	140-1	155 min -1		1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on povernor control lever [est oil temp. 40°C (104°F)		Control rod stop 3a		Fuel delivery characteristics			Starting fuel delivery Idle speed Control		
rev/min 1	cm ³ /-1000 strokes 2	re 3	ev/min		rev/min 4	cm³/~1000 strokes 5		rev/min 6	cm ³ /1000 strokes/ mm	
600	110,0-112,0 (108,0-114,0)		600		1050	107,0-111,0 (105,0-113,0)		100	195,0-235,0 =19,5-21,0	

Checking values in brackets

estoil-ISO 4113

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Test Specifications Fuel Injection Pumps 1 WPP 001/4 GUS 21,2 a and Governors

2. Edition

PE 8 P 130 A 520/4 RS 3085

ROV 350-900 PA 602

supersede . 81 Guascor

1 - 2 - 4 - 5 - 6 - 3 - 7 - 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values apply to engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(3 15-3 35)	mm (from BDC)							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel.	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm				
900	8,5-8,6	18,8 - 79,1	0,5(0,9)							
350	4,0-4,2	2,2 - 2,8	0,8(1,2)			7				
		·								

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rat	ed speed		Intermediate	rated sp	eed	Lower rated	speed		Clidina	lance branch
Degree of deflection of control	Control	Control rod te	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Suaing S	leeve travel
lever	mm	rev/min 22	iever	rev/min	mm (4)	iever	rev/min	mm (3)	rev/min	mm .
1	2	3	4	5	6	7	8	9	10	11
max.	950 1100	15,2-17,8 0 - 1	-	-	-	ca.10	100 350	min.5,6 4,0-4,2	300 500 700	1,0-1,2
ca.58	7,5 4,0	940 - 950 965 - 995				355 - 455			900	4,7-5,1 7,8
						3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) Fuel delivery characteristical initiation intermediate speed (5b)			Starting Idle switchin		Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	8	7 .	8	9
900	188,0-191,0 185: ₁ 0-194,0)	940 - 950*	-	•	100	19,5 - 21,0 mm RW	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 a

1. Edition

PES6P120A320RS3092-1

ROV320-1300 PA 654

supersedes

company SSCM engine 6LC520 S2 277 kW(376 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.75–2.95) mm (from BDC)

= RW 9,0-12,0 mm

· Ottoroning at prot	1000	2,/5-2,95)				
Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1280	12.6+0.1	23,5-23,9	0,5(0,9)		3	
320	7,2-7,4		0,8(1,2)	Se		- •
		į				
		1	İ			

Adjust the fuel delivery from each outlet according to the values in _____

B. Governor Settings

Upper rated s	peed	•	Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travei
deflection	rev/min Control	Control rod (a) travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	Onding 3	①
	rod travel mm 2	rev/min 23	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm .
-	-			 		ļ'	<u> </u>	3	1.0	<u>'</u>
max.	1305	15,2-17,8	-	-	-	ca.16	100	min.8,8	300	1,3-1,5
ca.66	11,6	1325-1335					320	7,2-7,4	630	3,7-4,0
		1415-1445				350-460			970 1300	5,5-5,7 8,4
	1550	0 - 1,0				3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deliv	rery characteristics 5a	Starting Idle switchir		Torque- travel	control 5	
rev/min	cm³/1000 strokes .	rev/min 44	rev/min	cm ³ /1000 strakes	rev/min	cm ³ /1000 strokes	rev/min 8	ļ,	
1280	235,0-239,0 (232,0-242,0)	1325-1335*	-	-	100	19,5-21,0 mm RW	•	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SSC 14,0 a 1.Edition

En

PE 12 P 100 A 520 RS 3103

RQV 375-1000 PA 639

supersedes_

company: SSCM

engine: Poyaud V 12-520 AN

219 kW (298 PS)

1-8-5-10-3-7-6-11-2-9-4-12

0-15-60-75-120-135-180-195-240-255-300-315 ° ±0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.75–2.95) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1000	10,8+0,	9,3-9,5	0,3(0,6)			
375	7,7-7,9	0,8-1,4	(0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	i 1		Intermediate	rated spe	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
of control lever	rod travel mm	rev/min (2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1070	15,2-17,8	-	-	-	ca.17	100	min. 9,3		0,8-1,1
ca. 63	9,8 4,0 1250	1040-1050 1090-1120 0 - 1,0					375	7,7-7,9	570 780 1000	3,5-3,8 5,0-5,4 7,6
						375-475 ③				

Torque control travel a =

mп

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir		Torque- travei	Control rod
rev/min	cm ³ /1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1000	93,0-95,0 (91,0-97,0)	1040-1050*	-	-	100	230,0-250,0	-	-
				·				
				э				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 15,8 I 1. Edition

En

PE 10 A 95 D 610/4 LS 2452

ROV-750 AB 995 L

supersedes

companyKHD

engine: F10L413F

196 kW (266 PS) bei 1500 min -1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
710	9,5-9,6	8,0-8,2	0,3 (0,6)			
300	5,6-5,8	0,4-0,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	760	15,2-17,8	-	_	-	-	-	-	-	-
ca.27	9,0 4,0	750-755 770-785								
						3a				

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		Rotational-speed 2b firmitation intermediate speed	Fuel delivery characteristics (5a) high idle speed (5b) rev/min cm³/1000 strokes		Starting Idle switchin	ng point	Torque- travel	Control (5) Control rod travel
1	2	3	4	5	6	7	8	9
710	79,5-81,5 (77,5-83,5)	750-755*	-	<u>-</u>	100	min.116,5 = 13,9-14,3 mm RW	-	-

Checking values in brackets

*1 mm less control rod travel than col. 2

11.82

1. Edition

PE 10 A 95 D 610/4 LS 2452 ROV 300-1250 AB 1026 DL

supersedes _

company: KHD

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315° - 0,5° (- 0,75°)

F 10 L 413 F

235 kW (320 PS) bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1 95-2 15)	mm (from BDC)	mm (from BDC)								
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel dalivery	Spring pre-tensioning (torque-control valve)						
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6						
1250	10,3+0,	9,1-9,3	0,3(0,6)								
300	6,8-7,	1,4-2,0	0,3(0,7)								
			!									
	:					-						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed			Sliding sleeve travel	
deflection	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control r	Control rod travel		1
lever	mm	rev/min 2a	lever	rev/min	mm (4	lever	rev/min	mm	(3)	rev/min	mm
1	2	3	4	5	6	7	8	9		10	11
max.	1295	15,2-17,8	-	-	-	ca. 12	1	min. 5,9-0		250 580	0,5-0,8 2,8-3,1
ca. 66	9,3 4,0 1500	1290-1300 1340-1370 0-1,0				330-400	550-	-680=2	-	920 1250	4,6-4,9 7,6
						3a					

0,4 Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min crh³/1000 strokes		imitation intermediate speed	ntermediate speed		ldle switchii		Torque- traval	Control 5 Control rod travel
1	2	3	4	5	6	7	8	9
1250	91,0-93,0 (89,0-95,0)	1290-1300*		90,5-93,5 (88,5-95,5) 91,0-94,0 (89,0-96,0)	100	14,3-15,3 mm RW	1000 700	10,3+0, 10,3+0, 10,7+0, 10,7+0,

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4 o

2. Edition

PES 6 P 120 A 820 LS 3095

RSV 350-750 P1/487

supersedes 82

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

companyDaimler-Benz engine: OM 407 A

and engine fuel-injection tubing

169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4.0 - 4.1Port closing at prestroke

		(3,95-4,15)	min (nom boc)								
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/min	mm .	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm					
1	2	3	4	2	3	6					
730	12,4+0,1	19,6 - 19,8	0,5(0,8)								
350	5,7-5,9	3,0 - 4,0	0,8(0,7)								
			ļ		•						
	<u> </u>	<u> </u>		<u></u>	I						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control red travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	700 x =	0,3-1,8 2,25	-	-	-	-	-	-	-	-
€a. 33	11,4 4,0 900	745-760 765-795 0,3-1,7				·				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a Idle stop	
Test oil tem rev/min 1	1	Note: changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min			Control rod travel mm
730	196,0-198,0 (193,0-201,0)	745-760 *	•	-	100	170,0-190,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 8,0 e.2

3. Edition

En

PE 6 P 110 A 720 RS 393

RSV 350-1200 P 1/462 R

supersede2.82

company:Scania

engine: D 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC)

	<u> </u>	,95-3,15/				
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	tu w	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1200	12,0+0,1	9,5 - 9,7	0,4(0,8)			2,5+0,1
350	6,9-7,1	0,8 - 1,2	0,3(0,5)			(2,2-2,9)
		}				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower	rated spe	ed	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	•	•	=	ca.24	350	6,5	-	-	
	×	= 4,0						min.20,0 6,9-7,1			
ca. 62 5	11,0 4,0 1440	1240-1250 1275-1305 0,3-1,7	•				ľ	90 =2,0mm			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1200	95,0- 97,0 (92,0-100,0)	1240-1250*	600	88,5 - 91,5 (85,5 - 94,5)	100	170 - 210 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 3,8 f 2 1. Edition

En

PES 4 A 80 D 410 R2 2519

RSV 350-1275 A2B 1004 DL

supersedes-

company Daimler-Benz OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2.10-2.30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1275	9,0-9,1	5,3-5,4	0,2 (0,35)			
350	7,4-7,6	1,6-2,2	0,2 (0,3)			
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		interm	ediate rate	ed speed	(4)	Lower	rated speed	(3) To	3 Torque control		
Degree of deflection of control	Control rod travel	Control rod travel				Control- lever deflection	rev/min	Control rod travel		Control rod travel		
lever 1	2	3	4	5	6	in degrees 7	8	mm 9	rev/min 10	mm 11		
loose	800	0,3-1,0	-	-	-	ca. 22	350	7,0	1275 900	9,0-9,1 9,3-9,5		
,	X =	4,0					100 350	min.19,0 7,4-7,5	500	9,6-9,7		
ca. 52	8,0 3,6 1600	1315-1325 1355-1385 0,3-1,7						= 2,0 max. 1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ill-load stop emp. 40°C (104°F)	Rotational- speed limitat	11301	uel delivery paractenstics	Starting f	uel delivery 5	(4a) Idi	e stop
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
1275	52,5-53,5 (51,0-55,0)	1315-1325*	900 500	48,5-50,5 (47,0-52,0) 45,5-47,5 (44,0-49,0)	100	12,8-13,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH

Test Specifications Fuel Injection Pumps (1A)_{1. Edition} and Governors

WPP 001/4 DAF 11,6 t 4

PE 6 P 110 A 320 RS 385-1

RSV 250-750 P 7/479

DK, DKT, DKS; DKA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,8-2,9 Port closing at prestroke (2,75-2,95)

Testoil-ISO 4113

mm (from BDC) = RW 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm-/ 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
750	12,6+0,1	16,9-17,1	0,4(0,8)		0	
250	6,8-7,0	2,6-3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	I rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) to	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever	•	Control rod travel		Control rod travel
of control	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
1oose	700	0,3-1,0	-	-	-	ca. 18	250	6.9	-	-
	x =	3,75				<u> </u>	250	6,8-7,0		
ca.44	11,6 4,0 950	790-795 £10-825 0,3-1,7					245-30	05 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emo 40°C (104°F)	Rotational- speed limitat	1301	el delivery aracteristics	Starting f	uel delivery 5	4a) Idie	e stop
rev/min	cm ³ /1900 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7 "	i	travel mm 9
750	169,0-171,0 (166,0-174,0)	790-795*	•	-	100	19,5-21,0 mm RW		-

Checking values in brackets

11.82

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fedérale d'Allemagne par Robert Bosch GmbH.

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 WOL 7.0h 3. Edition

En

PE 6 P 110 A 320 RS 390

RSV 200 - 750 P 4/421

supersed \$ 81 company Vo I vo engine TD 70 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 411

(2,95-3,15)3,00-3,10

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ^y 100 strokes 4	Control rod travel mm	Fuel delivery cm·//100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	10,2 - 10,4	0,4(0,8)			2,5+0,1**
300	5,4-5,6	1,9- 2, 9	0,3(0,6)			(max.2,2-2,9)

B. Governor Settings

(1) Uppe	er rated speed		Interm	nediate rat	ed speed	(4)	Low	er rated speed	(3) To	orque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
100se	i i	0,3-1,0 4,0				ca.18	300	5,5		
ca.37	750-755 775-785 1000=0,	=4,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	6 Rotational- speed limitat	11361	uel delivery naractenstics	Starting I	fuel delivery 5	(4a) Idi	e stop
rev/min	cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
700	102,0 - 104,0 (97,0 - 105,0)	750-755*		·			-	
							-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 5,7 x 6 1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-750 A0B 741 L

supersedes Daimler-Benz company OM 352 engine 52 kW (71 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,25-2,35 (2,20-2,40)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
700 350	11,2+0,1 7,4-7.6	5,4 - 5,5 0,5 - 1,1	0,3 (0,45 0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1) Uppe	r rated speed		Intermed	rate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	11
loose	800	0,3-1,0	-	_	-	ca.15	350	7,5	-	-
	X =	2,0					100 420-480	min.19,5		
ca.26		750-755						**		
2 a		801-814 0,3-1,7					550	max. 1,0		

^{**} Set idle auxiliary spring at 2,0 mm.
The numbers denote the sequence of the lests

C. Settings for Fuel Injection Pump with Fitted Governor

	alt-load stop	6 Rotational- speed limitat		el delivery aracteristics	Starting f	uel delivery 5	(4a) Idli	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to :) rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
700	54,0-55,0 (52,0-57,0)	750-755 •	-	-	100	78,0-88,0	_	-
		-			•		***	

Checking values in brackets

11.82

BOSCH

^{* 1} mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps 1 WPP 001/4 IHC 9,0 a and Governors

1. Edition

PES 8 A 95 D 320 RS 2586

ROV 325-1400 AB1097 R

Suction-gallery pressure 2,5 bar overflow valve 1 417 413 019

company: IHC engine: D9L

180 PS (133 kW)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated speed Degree of rev/mir deflection Control of control	travel (a)	Intermediate Degree of deflection of control	rated sp	Control rod travel	Lower rated Degree of deflection of control	speed	Control rod travel	Sliding s	leeve travel
lever mm	rev/min (2a)	lever	rev/min 5	mm (4)	lever 7	rev/min	mm (3)	rev/min	mm 11
ca. 67 10,6 4,0 1650	1140-1450 1535-1565 0-1,0	-	-	-	ca. 10	100 325	min. 9,6 7,2-7,4 740 = 2,0	-	-

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics 5a	Idle	fuel delivery 6	Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1400	72,0-74,0 (70,0-76,0)	1440-1450*	800	max. 65,0	100 325 170	75,0-95,0 = 17,2 mm RW 9,0-15,0 -250		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8,8b

5. Edition

PES 6 P 120 A 320 RS 417 RQV 300-1200 PA 527 K Values apply to

supersede8.81 company:RVI engine: MIDS 062030 158 kW (215 PS)

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port-closing mark 9,5° camshaft after port closing of cylinder 1.

ı
okes mm
6

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
1	100		of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 5,7	250	0,4-0,7
ca. 60	8,3 4,0 1500	1240-1250 1330-1360 0-1,0				330-445 (3a)	300	4,1-4,3	570 880 200	3,6-3,8 5,3-5,4 8,0

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

ļ	d stop np. 40°C (104°F) 2	limitation Intermediate speed	high idle s	pery characteristics 5a peed 5b cm ³ /1000 strokes	ldle switchir		Torque- travel	Control 5 Control rod travel
rev/min	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	5	6	7	8	9
1200	154,0-156,0 (151,0-159,0)		800 500	140,5-146,5 (137,5-149,5 82,0-88,0 (79,0-90,0	300		350	9,3+0,1 7,7+0,2 8,5+0,2

Checking values in brackets

* 1 mm less control rod travel there coi. 2

(2)

Test Specifications		4
Fuel Injection Pumps	(2) WPP 001/4 MWM 5	53 , 1 a
and Governors	2. Edition	

PE 8 P 130 A 500/5 LS 3053 (1) PE 8 P 130 A 500/5 LS 3054 (2)

supersedes 82

companyMWM - Südbremse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at presi	troke	(2.75-2.95)	mm (from BDC)	RW =	21,0 mm	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	34,7 - 35,1 (34,4 - 35,4)	0,5 (0,9)			
300	5,3-5,5	4,8 - 5,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

g of slider	•	•	_	rifications (1)		-		cifications (E)	Torque o	\sim
Control rod travel	rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel rnrn	rev/min	Control rod travel mm	rev/min	Control rod travel
2	3	4	5	6	7	8	9	10	11	12
					ļ					
	Control rod	Control rod Setting po	Control rod travel mm Setting point Control rod travel mm	Control rod Test spector Control rod Test spector Control rod Travel rod trav	Control rod Travel rev/min rev/min Test specifications (4)	Control rod travel mm rev/min mm rev/min rev/min rev/min rev/min	Control rod travel mm rev/min mm Setting point Control rod travel mm rev/min mm rev/min mm rev/min mm	Control rod Control rod Control rod travel rev/min rev	Control rod Control rod travel rev/min mm rev/min rev/	Control rod Control rod rovel rev/min row rev/min rev/min rev/min rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row rev/min row row row row row row row row row row

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection PumpwithoutFitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivi	ery characteristics	<u>3b</u>	Starting fi	uel delivery d Control
rev/min	cm³/- i 000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5		rev/min	rod travel 次的说次90%来來來來 ATBINR W 7
l in a	full-load deliver ccordance with th bumps operate in	le engine inspec	n the tion s	engine heet.		100	19,5 - 21,0

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 1 i 1

4. Edition

supersedes 82 RQV 300-1400 AB 951 DL (1-2) PES 6 A 80 D 410/3 RS 2527 300/1400 AB 935 DL (3) companKHD RO RS 2348 engine: F 6 L 913 (1-2) 96 kW (130PS) / 2800min₁ 300/1325 AB 935 DL (4,7) (3) 96kW (130PS) / 2800min 300/1250 AB 935 DL (5-6) RQ (4,7)89kW (121PS) / (5) 89kW (121PS) / (6) 77kW (105PS) / Instructions for items 2 and 5, page 4!
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers 2650min 2500min 2500min

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	12,5+0,1	_	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B Governor Settings

D. 4011	211101	Oèttin	93				RS 234	8 m. [ROV AB 9	51 (1-	2)
Upper rated s	peed			Intermediate	rated sp	eed	Lower rated			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(a) (2a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	1
max.	1470	15,2-17	,8		-	-	ca. 12	100	min.7,5	250	0,4-1,0
ca. 65	11,0 4,0 1700	1440-14 1545-15 0 -				•	410-650 (3a)	1	5,9-6,1 590= 2,0	630 020 400	2,8-3,5 4,6-5,0 7,6

.. RS 2527

Torque control travel a = 0.9

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten		Rotational-spæed 20 limitation intermediate speed	Fuel deliv	rery characteristics (5a)	Starting Idle switchir	,	Torque- travei	Control cod
rev/min	cm ³ /1000 strokes	rev/min 4a) 3	rev/min 4	cm ³ /1000 strokes 5	rev/mia 6	90%# 99 0% X 94% X 7	rev/min 8	travel mm
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	_ , , ,	1150	12,0+0,1 12,3+0,3 12,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

PRG che	g of slider cck Control rod travel mm 2	Full-load s Setting po rev/min 3	•	•	rev/min	Idle spee Setting p rev/min 7	Control rod travel		cifications 5 Control rod travel mm	rev/min	Control rod travel
700 VH c	19,2-20,8 a. 46°	700	20,0	11,0 4,0 1700	1445-1460 1540-1570 0 - 1,0		8,5	300	min. 10,0 8,4-8,6 640=2,0mm max.1,0	950	12,0-12,1 12,5-12,8 13,0-13,2

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

411		elivery on ontrol lever op 40°C (104°F)	Control rod stop	Fuel deliv	very characteristics	Starting l	tuel delivery 6
0	rev/min	cm ¹ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min	rod travel cm ³ /1000 strokes / mm 7
estoil-IS	1400	69,0 - 70,0 (67,5 - 71,5)	-	700	64,5-66,5 (63,0-68,0)	-	-
Te							

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check	Full-load speed Setting point	regulation Test specifications	Idle speed regula	ation Test specifications (5)	Torque control (3)		
Control rod travel mm 2	rev/min mm 3 4	Control od travel mm rev/min 5 6	Control rod travel rev/min mm 7 8	Control rod travel rev/min mm 9 10	Control rod travel mm 11 12		
820 19,2-20,8 VH ca. 46°	820 20,0	11,5 4,0 1460-1490 0 - 1,0		100 min. 7,5 300 5,9-6,1 500-540 = 2,0 700 max. 1,0	1325 775 875 13,6-13,7 13,2-13,4 1000 12,6-12,9		

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp=40°C (104°F)	2	Control rod stop		Fuel delive	ery characteristics	3 L. \	Starting fi	d Control		
rev/min	cm³/-1000 strokes 2		rev/min 3		rev/min 4	cm³/-1000 strokes		rev/min 6		od travel	
1325	68,5-69,5 (67,0-71,0)		700		775	72,5-75,5 (71,0-77,0)		-	-		

En Checking values in brackets

Checkin	g of slider	Full-load	speed re	gulation	_	Idle spec	ed regula	ation	_	Torque o	control
PRG che	eck (1)	Setting po	oint	Test spec	cifications (4)	Setting p	point	Test spe	cifications (5)		(3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rmm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 10	1250	12,5-12,6
VH	ca. 46°			4,0	1370-1400			300 580- 750	84,-8,6 620=2,0 max. 1,0	950 800	13,0-13,3 13,5-13,6
Targua	Control travel										1 mm less control

Torque-control travel

0,4 _{mm}

Speed regulation A295-1310 min⁻¹

nm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics 3b	Starting f Idle spee	uel delivery d Control
rev/min	om ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/~1000 strokes 5	rev/min	rod travel cm ³ /1000 strokes / mm 7
1250	66,5 - 67,5 (65,0 - 69,0)	-	800	64,0 - 66,0 (62,5 - 67,5)	-	-
		0				

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checkin	g of slider	Full-load	speed re	gulation		_	idle spec	ed regula	ation	_	Torque o	control
PRG che	eck 1	Setting p	oint	Test spe	cifications	(4)	Setting p	ooint	Test spe	cifications (5)		(3
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel rnm 5	rev/min	<u> </u>	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel
800	19,2-20,8	800	20,0	10,9	1295-	1310	300	8,5	100	min.10,0	1250	11,9-12,0
VH c	a. 46°			4,0	1360-	1390				8,4-8,6 20 = 2,0 max. 1,0		12,7-12,9 13,5-13,6
- • -	control travel		0,65	mm			eed requir		95-13	10 min ⁻¹		1 mm less cont

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104°F)	Control red stop 3a	Fuel delive	ery characteristics (3b)	Starting f	uel delivery d Control
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min 6	rad travel cm ³ /1000 strokes / mm 7
1250	58,0 - 60,0 (56,5 - 61,5)	-	700	53,5 - 56,5 (52,0 - 54,0)	-	•
				\$ \$ -		

With item 2 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQV 300-1400 AB 951 DL and item 5 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQ 300/1250 AB 935 DL

an engine code no. instead of the engine output is sometimes given by the custommer on the engine nameplate.

These engine code nos. 1025, 1032, 1035 and 0708 require a reduced full-load delivery:

n $1250 = 57,5 - 59,5 \text{ cm}^3/1000 \text{ strokes}$ n $850 = 55,5 - 57,5 \text{ cm}^3/1000 \text{ strokes}$

From engine no. 6216 324 the follwing applies:

n $1250 = 63,5 - 66,5 \text{ cm}^3/1000 \text{ strokes}$ n $850 = 60,5 - 62,5 \text{ cm}^3/1000 \text{ strokes}$.

This must at all costs be taken into account when new adjustements and control measurements are made.

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1 a

3. Edition

En

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D 325-1150 A8B674D, 707 D

supersede**\$1.77** company: K H D

engine. BF 6 L 913

RS 2415

RS 2532

Instructions P. 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.9 + 0.1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6	0,6-1,4				
200	9	0,6 - 1,4 1,4 - 2,2				
						•

Adjust the fuel delivery from each outlet according to the values in ____

B. Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 69	1400 1450	16,0 10,5				ca. 20	325,	5,5	1400	
	1500	4,0	without	auxi	liary spr	ng	200	19 - 21	1400	0
E3. 68	1400 1510 1600	ca. 10,0 ca. 4,0 0,3 -1,5	with au	ıxilia	ry spring		325 500 650	5,2-5,8 1,2-3,3 0 - 1,5	500	1,2-1,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.	N .	el delivery tracteristics	Starting Idle	fuel delivery	Ga Idle stop		
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1900 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm	
LDA	0,7 bar		LDA	0,7 bar					
	Instructions	P. 3			100	119,5-129,5	325	5,5**	
			LDA 500	0 bar 43,5 - 47,5					
(increa	se by $\frac{1}{2}$ 1,0 c	m ³)	<u> </u>		<u> </u>			./.	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV 325-1150 A8B674D, 707 D

14 1 /	travel	rev/min Control rod travel mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	rev/min	rque control Control roct travel mm
ca. 56	1150 1200 1250	16,0 11,1	witho	ut aux	iliar	sa. 21 v spring	325 200	5,5 19 - 21	1130	0
2 a	1220 1300 1380	7,5-10,4 1,3-3,6 0,3-1,5	with	auxili	ary s	ring	325 500 660	5,5-5,8 1,4-3,4 0 -1,5	500	1,0-1,2

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ull-load stop	6 Rotational- speed limitat		el delivery aracteristics	Starting f	fuel delivery 5	4a) Idle stop		
	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to; rev/min 3	rev/min cm³/1000 strokes		rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm	
LDA Ins	0,7 bar tructions P. 3		LDA	0,7 bar	100	119,5-129,5	;325	5,5**	
		-	LŪA 500	0 bar 43,5 - 47,5					

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure XXXXXX

	^^^^		, _
Pump/governor	Setting	Measurement	diminution Control rod travel- XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
	Gauge pressure = bar	Gauge pressure = bar	mm x\\\x
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0
	·		

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

^{* 1} mm less control rod travel than col. 2

- 3 -

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	stop	Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	ו מסטט ו	Starting Idle switching	_	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm ,
1	2	3	4	5	6	7	8	9

•				•	•	•			•	•		•
BF 6 L	913	-	PES	6 A	DRS2366,	2415		F	or E	outp	ut at	min ⁻¹
1400 1400 1325 1325 1325 1250	88,0 84,0 90,5 87,5 82,5 87,0		86,0 92,5 89,5 84,5		1420 1420 1340 1340 1340 1270	800 800 850 800 800 800	80,0 66,0 88,5 82,5 66,0 84,5	- 69 - 90 - 85 - 69	,0 ,5 ,5	160 142 168 160 140 160	PS PS PS PS	n = 2800 n = 2800 n = 2650 n = 2650 n = 2650 n = 2500
1250 1250 1200 1200 1165	83,0 81,0 86,0 78,0 84,0	-	83,0 88,0 80,0		1270 1270 1220 1220 1180	800 800 800 800 800	76,0 69,5 84,5 68,0 84,5	- 72 - 87 - 71	2,5 7,5 1,0	148 140 156 135 152	PS PS PS	n = 2500 n = 2500 n = 2400 nf = 2400 n = 2330
1150 1150 1190 1075 1075	83,5 80,0 82,0 82,0 78,0	-	82,0 84,0 84,0	,	1165 1165 1115 1090 1090	800 800 800 800 800	84,5 72,0 84,5 84,5 76,0	- 74 - 87 - 87	1,0 7,5 7,5	152 142 147 144 136	PS PS PS	n = 2300 n = 2300 n = 2200 n = 2150 n = 2150
1050 1000 1000 900 875	77,0 82,0	-	84,5 79,0	·	1065 1015 1015 910 885	008 008 008 008 008	73,5 84,5 72,0 84,5 66,0	- 87 - 75 - 87	7,5 5,0 7,5	137 130 125	PS PS PS PS PS	n = 2100 n = 2000 n = 2000 n = 1800 n = 1750
750 750			87,0 80,0		760 760	-	-				PS PS	n = 1500 n = 1500

Please note

- 1. ** With Liebherr exavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 1.0 before the stop.
- LDA adjustment to be carried out according to VDT-W-420,
- 3. Dimension H = 22.5 mm = basic setting of LDA.

 \odot

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 14,61

2. Edition

PE 8 P 120 A 320 LS 3807

ROV 300-1150 PA 526

1-8-7-2-5-3-5-4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

fications are valid for Bosch Fuel Injection Pump Test Benches and Testers

5.81 compan@aimler-Benz engine: OM 422 LA 276 kW (375 PS)

A. Fuel Injection Pump Settings

4,0-4,1 (3.95-4.15 mm (from BDC) Zv1_8 Port closing at prestroke

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,	1 18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)		•	
1150/600	11,6+0,1	C, Sp. 2 u.5	0,75(1,2)			
500	10,1+0,1	C, Sp. 5	0,75			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	Speed			Intermediate	rated sp	90 4	Lower rated	speed		~	
Degree of deflection of control	rev/min Control rod travel	Control rod travel	•	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	Shaing s	deeve travel
lever	mm	rev/min	2	lever	rev/min	mm (4	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1150	15,2-17	9,	-	-	-	ca.10	100	min.6,0	250	1,0-1,2
ca.65	10,6 4,0	1190-12 1230-12						300	4,2-4,4	550 850	3,4-3,7 4,9-5,3
	1350	0 - 1,	_ 1				320-465 3			150	7,6

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Fuil-load d Control-ro Test oil ten		Rotational-speed 20 Irmitation intermediate speed	Fuel deli- high idle s	rery characteristics (Se poed (Se)) ICHe	fuel delivery S	Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min		rev/min	travel mm
LDA 900 LDA 1150	0,7 bar 189,0-191,0 (186,0-194,0) 0,7 bar 185,0-189,0 (182,0-192,0)		LDA 600 LDA 500	0,7 bar 182,0-186,0 (179,0-189,0) 0 bar 139,0-141,0 (136,0-144,0)		140,0-160,0	8	9

Checking values in brackets

* 1 mm less control rod travel then col. 2

2.83

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

MB 14.6 1

-2-

			mD 14,0 1
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3807 + ROV PA 526	0 ,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 12,0 f2 1. Edition

En

PE 6 P 120 A 320 RS 3071 Z

RQV 250-1100 PA 371/2R

supersedes -

company: Volvo

engine:

TD 120 F

All test specifications are valid for Basch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

Port closing at pres		(2,55-2,75)	mm (from BDC)	, , , , , ,	-12,0 mm	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
700	12,7+0,	25,1-25,4	0,5(0,9)			
250	5,3-5,	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	 er:		Lower	ated	speed	_		Stidiog	leeve travel
deflection	rev/min Control rod travel	Control rod travel	(b)	Degree of deflection of control		Control travel	rod	Degree	on		Control travel	rod	Shoring s	1
	mm	rev/min	29	lever	rev/min	mm	①	of conti lever	roi	rev/min	mm	3	rev/min	mm
1	2	3		4	5	6		7		8	9		10	11
max.	1150	15,2-	17,8	<u> </u>	-		_	ca.	12	100	min,	7,0	200	0,7-0,9
ca. 46	11,7	1140-	1150	b						250	^l 5,3-	5,5	500	2,9-3,3
	4,0		124	[310-	360=2	2.0	800	5,1-5,4
	1350	0 -	1,	ן								.,-	1100	7,9
								(3a)						

Torque control travel a =

шш

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed (2b) timitation intermediate speed	Fuer delivingh idle s	rery characteristics 5a	Starting Idle switching		Torque- travel	control 5
rev/min	cfh³/1000 strokes .	rev/min 4a	rey/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	fravel mm
1	2	3	4	5	6	7	8	9
LUA 700	0,9 bar 251,0-254,0 (248,0-257,0		LUA 700			240,0-280,0 = RW 20,0 - 21,0 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

VOL 12.0 f 2

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS 3071Z + KQVPA 371/2R	0,67	0,90 0 0,26	11,9-12,0 12,7-12,8 9,3- 9,4 10,1-10,3

Notes:

(1) when n =

rev/min and gauge pressure =

WPP 001/4 MB 11.4 q

1. Edition

PES 6 P 120 A 820 LS 3112

RSV 350-1100 P0/500

supersedes -

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

Daimler-Benz

1 680 750 067

company 0M407A

and engine fuel-injection tubing

engine 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

restoil-ISO 4113

4,0 - 4,1 (3,95-4,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm /100 strokes	rnm 6
1100	11,5+0,1	17,5-17,7	0,5 (0,9)			
350 600 500	4,7-4,9 11,8+0,1 10,5+0,1	1,6-2,2 C, Sp. 4 u. 5	0,8 (1,2) 0,75(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	(1)		rated speed	3 To	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	ca. 25	350	4,8	1100	11,5-11,6
	X =	3,25					420-460	= 2,0	750 600	11,7-11,9 11,8-11,9
ca. 48	10,5 4,0 1300	1135-1145 1215-1245 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp. 40°C (104°F)	Rotational- speed limitat Note changed to) rev/min	11.361	el delivery laractenstics cm³/1000 strokes	rev/min	cm³/1000 strokes	•	Control rod travel mm
LDA 1100	0,7 bar 175,0-177,0 (172,0-180,0)	1135-1145*	LDA 600 LDA 500	0,7 bar 177,0-183,0 (174,0-186,0) 0 bar 143,0-145,0 (140,0-148,0)	100	150,0-170,		- .

Checking values in brackets

* 1 mm less control rod travel than col. 2

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

			MB 11-4
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PLS3112 + RSVPO/500	0,70		11,8 - 11,9
. 1.37 0, 300		0,40	10,7 - 10,9
		0,50	11,6 - 11,7
		0	10,5 - 10,6

Notes:

(1) whon n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 o 4 1. Edition

n

PE 6 P 120 A 320 RS 415-1

RSV 250-1100 P5/474

supersedes:..

company DAF

engine DKS-1160 P

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2.75-2.95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tension:reg (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
650	11,9+0,1	18,8-19,2	0,4(0,8)			
250	6,7-6,9	1,9-2,3	0,4(0,7)			
•		1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	1) Upper rated speed rev/min Interme			diate rated	speed	(4)	Lower	rated speed	(3) To	rque control
Degree of deflection	Control rod travel	travel				Control- lever deflection	rev/min	Control rod travel	rev/min	Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	in degrees	8	9	10	11
loose	800	0,3-1,0	-			ca. 24	250	6,3	650	12,1-12,2
	x =	5,0					250	6,7-6,9	1100	10,4-10,6
ca.53	9,4	1140-1150					410-475	2,0	800	11,5-11,7
22	4,0 1350	1200-1230 0,3-1,7							900	10,9-11,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational- speed limitat			Starting I	fuel delivery 5	4a Idle stop		
Test oil te rev/min	emp. 40°C (104°F) cm³/1000 strokes	Note: changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
LDA 650	0,7 bar 188,0-192,0 (185,0-195,0)	1140-1150*	LDA 1100 LDA 600	0,7 bar 187,0-191,0 (184,0-194,0) 0,7 bar 133,0-137,0 (130,0-140,0)	100	310,0-350, = 19,5 - 21,0 mm RW	0 ~	-	

Checking values in brackets

* 1 mm less control red travel than col. 2

BOSCH

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-2-

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

DAF 11,6 o 4

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 415-1 + RSVP 5/474	0,27	0,70 0 0,12	11,4-11,5 11,9-12,0 9,8-9,9 10,2-10,4

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

WPP 001/4 SAU 12.0 e

1. Edition

PES 6 P 120 A 420 RS 3063, Z

RQ 200-1100 PA 279-1

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

supersedes-

company: Saurer

D 3 KTUB

155 kW (211 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
9,0-9,1	13,4-13,8	0,5(0,8)			
5,6-5,8	1,3-1,9	0,8(1,2)			
	mm 2 9,0-9,1	travel mm cm³/100 strokes 3 9 0 9 1 13,4-13,8	travel mm cm³/100 strokes cm³/ 2 3 4 9_0_9,1 13,4-13,8 0,5(0,8)	travel cm³/100 strokes cm³/ 100 strokes mm 2 2 2 2 2 2 2 2	travel mm cm³/100 strokes 2 3 travel mm cm³/100 strokes 2 3 cm³/ 9_0_9_1 13_4_13_8 0,5(0,8)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod travel	Full-load s Setting po rev/min 3		_	rev/min	Idle spec Setting p rev/min 7	Control red travel	Test spe	cifications 5 Control rod travel mm 10	Torque o rev/min 11	Control rod (3)
550	15,6-16,4	550	16,0		1145-1160 1180-1210 0-1,0	250	5,7	250	min. 7,1 5,6-5,8 380=2,0	1100 910 860 550	9,0-9,1 9,1-9,3 9,2-9,6 9,5-9,6

Torque control travel on flyweight assembly dimension a = 0,3 _{mm}

1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	r ev /min	Control red travel crm ³ /1000 strokes:/ mm	
LDA 1100	0,7 bar 134,0-138,0 (131,0-141,0)	-	LDA 700 LDA 400	0,7 bar 143,0-147,0 (140,0-150,0) 0 bar 89,0-93,0 (86,0-96,0)	100	210,0-240,0	

Checking values in brackets

-2-

Test at n =

500

rav/min decreasing pressure – in bar gauge pressure

SAU 12,0 e

Gauge	e pressure = bar		
		Gauge pressure = bar	mm (1) .
PES 6 PRS3063, Z +RQPA 279-1	0,26	0,70 0 0,11	9,3-9,4 9,5-9,6 8,3-8,4 8,6-8,8

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 SCA 11,0 r 1

3. Edition

PE 6 P 110 A 720 RS3040

RQ 250/1100 PA411R

company: Scania engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from 8DC# RW 9,0 - 12,0 mm

		,23-3,43/				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,	15,7 - 15,9	0,4(0,8)			2,5+0,1** (max.2,2-2,9)
225	3,9-4,1	0,9 ~ 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ** In the case of greater dispersion alter the delivery-valve spring pre-tension

accordingly. B. Governor Settings

Checkin PRG che rev/min 1	Control rod travel	Full-load s Setting po rev/min 3	•	_	cifications 4 rev/min	Idle spee Setting p rev/min 7	•	Test spe	crifications 5 Control rod travel mm	rev/min	Control rod travel	3)
700	15,6-16,4	700	16,0	11,5 4,0 1350	1140-1150 1230-1260 0 - 1,0		3,3	100 225 255-	min.5,3 3,9-4,1 315 =2,0	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At 1140-1150 min

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics (3b)	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm³/1000 strokes:/ mm 7	
LDA 1100	0,5 bar 157,0 - 159,0 (154,0 - 162,0)		LDA 600 LDA 500	0,5 bar 161,0 - 165,0 (158,0 - 168,0) 0 bar 126,0 - 130,0 (123,0 - 133,0)	100 225	240,0 - 290,0 9- 13 **	

Checking values in brackets

BOSCH

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

SCA11,0r1

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure ≈ bar	Gauge pressure = bar	mm (1) .
3040 + 411R	0,38	0. 50	12,7-12,8
		0,50 O	13,0-13, 1 11,7-11,8
		0,28	12,0-12,2

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 u

2. Edition

PE 6 P 110 A 720 RS 441

RSV 250-1200 P5/493

supersede 8.81 company DAF engine D HS 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pymp Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDe) RW 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	12,2+0,1	13,6 - 13,8	0,4(0,8)			
250	5,0-5,2	0,7-1,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	(3) Tot	rque control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Evegree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	_	-	-	ca.24	250	4,6	400	12,4+0,1
	X =	5,0					250	5,0-5,2	300	12,6+0,5
5sa.58	11,2 4,0 1500	1240-1250 1310-1340 0,3-1,7					525-5	5,0-5,2 85=2,0mm	س.	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idl	e stop
rev/min	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
850	136,0-138,0 (133,0-141,0)	1240-1250 *	600	0 bar 91,0-94,0 (88,0-97,0)	100	245,0-285,0 RW 19,5 21,0 mm	i .	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

DAF 11.6 u

-2-

ge pressure =	bar mm	diminution difference (1) 11,7-11,8 12,2-12,3	
	bar mm	11,7-11,8	-
0,70			
0,70		122-123	
		1696 - 1697	
0		10,4 - 10,5	
0,30		11,0 - 11,2	
	·		

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 19,1 m 1

Edition

PE 12 P 110 A 320 LS 832

ROV 350-1150 PA 493 R

SupersetQs 81 Company Daimler-Benz OM 404 A engine:386 kW (525 PS)

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12 0 -15 -60 -75 -120 -135 -180 -195 -240 -255 -300 -315 + 0,5° (+0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,2-3,3 Port closing at prestroke (3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	13,1+0,	14,0 - 14,2	0,4(0,8)			
350	7,5-7,7	1,8 - 2,4	0,4(0,7)			
		<u> </u>	<u>L</u>	<u> </u>		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed			
deflection of control	rev/min Control rod travel	Control rod (la travel mm	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Slidings	sleeve travel
lever	mm	rev/min (2a)	leve:	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
<u> </u>	2	3	4	5 .	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	•	ca.18	100 350	min.8,6 7,0-7,2	300 600	1,4-1,6 3,6-3,9
ca.66	12,1 4,0	1185-1195 1295-1325					690-7	50=2,0mm	850 1150	5,1-5,4 7,9
	1450	0 - 1,0								
						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 58	Starting fuel delivery Idle switching point		Torque- travel	Control rad
rev/min 1	cm³/1000 strokes . 2	rev/min 48 3	rev/min	cm ³ /1000 strakes	rev/min 6	cm³/1000 strokes 7 mm RIV	rev/min 8	travet mm
LDA 1130	0,7 bar 140,0-142,0 (137,0-145,0)	1185-1195*	LDA 500	0 bar 121,0-123,0 (118,0-126,0		19,5-21,0	-	-
1130	100,0-102,0 (97,0-105,0)		·				

Checking values in brackets

1 mm less control rod travel than col. 2

12.82

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

MB 19,1 m 1

oressure = bar		difference
	Gauge pressure = bar	ര m (1) .
0,7	0 0,4 0,33	13,1-13,2 12,3-12,4 12,9-13,0 12,5-12,7
	0,7	0 0,4

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

** Adjuste at the inner lever of the reduced-delivery stop.

Test Specifications Fuel Injection Pumps 1 WPP 001/4 Vol.7,0i and Governors

2. Edition

PE 6 P 110 A 320 RS 413 Y RQV 250-1200 PA 499

supersedes 80

company:VOIVO

engine: TD 70 F 180 kW(245PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control value) mm 6
700	2,7+0,1	12,9 - 13,1	0,4(0,8)			2,5 + 0,1**
250	5,2-5,4	0,9 - 1,3	0,3(0,6)			(max.2,2-2,9)

B. Governor Settings

Upper rated sp	peed		Intermediat	e rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
	mm	rev/min (2	a) lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200 1500	15,2-17, 0 - 1	8			ca.9	100 250	min.6,9 5,2-5,4		
ca.63	11,7 4,0	1240-125 1375-140				300-450 (3a)				

Torque control travel & =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed 20 limitation intermediate speed	Times and approximately		Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 129,0-131,0 (126,0-134,0)	1240-1250*	LDA 700	0 bar 78,5 - 80,5 (75,5 - 83,5)	100	160,0–200,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

VOL 7,0 i

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
413 Y + 499	0,7	0,53 0,20 0	12,7 - 12,8 12,3 - 12,4 10,5 - 10,7 10,1 - 10,3
			•
·			

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 6.2 i

7. Edition

PE 6 A 90 D 320 RS 2547 RQ 250/1200 AB 1022 R See Service Information VDT-I-DAT 004 Specifications apply to test tubing 1 680 750 015. supersede2.82 company DAF engine: DT 615 113 kW (153 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,20-2,30
Port closing at prestroke (2,15-2,35) mr Port closing difference between control-rod travel 9 mm and max. = $2.5 - 3.5^{\circ}$ camshaft.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery ¹³ cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	10,8+0,	7,1-7,3	0,3(0,45)			
250	6,9-7,1	1,1-1,5	0,2(0,4)			
	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	ck Control rod	Full-load s Setting po	Control	Test sper	cifications (4)	ldle spee Setting p	-		cifications 5	Torque o	control Control rod	3
rev/min 1	travel mm 2	rev/min 3	red travel mm 4	rod travel mm 5	rev/min 6	rev/min 7	rod travel mm 8	rev/min 9	travel mm 10	rev/min	travel mm 12	
650	19,6-20,4	650	20,0	9,8	1245-1265	250	8,5	250	min. 10,0 8,4-8,6	-	-	
VH =	max. 46°			4,0 1500	1340-1370 0-1,0			i .	65=2,0 max. 1,0			

Torque-control travel on flyweight assembly dimension a =

1245-1265 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever pp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery 6
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	control rad travel cm ³ /1000 strokes / mm 7
LDA 1000	0,7 bar 71,0 - 73,0 (69,0 - 75,0)		LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	<u>-</u> 250	7, 0

hecking values in brackets

2.83

Test at n =

1000 rev/min decreasing pressure – in bar gauge pressure

DAF 6.2 i

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 2547 + RQAB 1022 R	0,70	0,27 0,16 0	10,8 - 10,9 10,6 - 10,7 9,9 - 10,1 9,8 - 10,0
	· .		

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

K20

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4

4. Edition

PES 6 MW 100/320 RS 1016 RQV 300-1300 MW 25 Komb. 0 403 446 123

supersedes. 82 companyRVI MIDR06.02-12 125kw (170PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Port closing mark 10,5° after

A. Fuel Injection Pump Settings

port closing.

Port closing at pres	itroke	3,00-3,10 (2,95-3,15)	mm (from BDC)	W = 9,0-	12,0	· ·
Rotational speed rav/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,1+0,1	8,9 - 9,1	0,35(0,6)			
300	5,8-6,0	0,95-1,35	0,35(0,55)		7
900	11,1 ⁺⁰ ,		0,5 (0,7)			
500	10,0 ⁺⁰ ,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	peed		Intermediate	rated sp	eed	Lower rated	speed		Custina	
deflection	rev/min Controt rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	leeve travel
1	2	3	4	5	6	7	8	9	10	11
max.	1300 1600	15,2-17,8 0 - 1,0				ca. 13	100 300 490-	min. 7,5 5,8- 6,0 550 = 2,0		
ca. 52	10,1 4,0	1340-1350 1450-1580				(3a)		•	·	

Torque controi travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel delin high idle s	very characteristics 5a	Starting Idle switching		Torque- travel	control 5
rev/min	cm ³ /1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1300	0,67 bar 89,0-91,0 (87,0-93,0)	1340-1350*	LDA 900 LDA 500	0,67 bar 86,5 - 90,5 (84,5 - 92,5) 0 bar 59,0 - 61,0 (57,0 - 63,0)	100 300	min. 100,0 9,5 - 13,5 (7,0 - 16,0) 230 (80-250)	<i>8</i>	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n ≈	500	rev/min Wetredsing pressure -	in bar gauge pressure	-2- RVI
Pump/governor		Setting	Measurement	diminution Control rod travel- difference
		Gauge pressure = t	ar Gauge pressure = ba	r mm (1)
RS 1016 +	MW25	0,25	0,67 0 0,22	10,8 - 10,9 11,1 - 11,2 10,1 - 10,2 10,3 - 10,4
•				

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specification Sestoil-ISO 4113 Fuel Injection Pumps

WPP 001/4 DEE 6.6 a

Edition

<u>En</u>

PES 6 A 95 D 410 RS 2380 RS 2508

and Governors

EP/RSV 400-1100 A2B770DL

supersedes

company: John Deere

engine:

6404 T

Manifold-pressure compensator (LDA) adjustement page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 mm (from BDC)

Port-closing mark 14° after

port closing.

		1,85-2,05)			port cros my	•
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2-4,2				7
200	6	0,5-1,4				

Adjust the fuel delivery from each putlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	eed	(3) To	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	i0	11
ca.44	1100 1180 1220	16,0 9,8 6,0	without	: auxi	liary spri	ca.21	,	5, 1 19 - 21 5,5-5,7	1080	0
§a.43	1100 1200 1400	ca. 9,8 ca. 5,0 0,3-1,7	with au	xilia	ry spring		1	3,3-4,4 0 - 1	450	0,7-1,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idi	e stop
Test oil temp rev/min 1	.40°C (104°F) cm ³ /1000 stroke:: 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel man 9
LDA . 1100	0,7 bar 85,5 - 87,5 (83,5-89,5)	1140-1150 * (1135-1155)	LDA 750 LDA 550	0,7 bar 95,0 - 98,0 (93,0-100,0) 0 bar 63,5-69,5 (61,5-71,5)	i	19,0-21,0 mm RW	400	5,6
				(61,5-71,5)				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

DEE 6,6 a

Test at n =

rev/min decreasing pressure – in bar gauge pressure

Preliminary adjustement, dimension H = 21,8 mm

550	XXXXXXX		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = ba:	Gauge pressure = bar	mm (1)
2380 + 770DL 2508 + 770DL	0,45		- 0,1 - 0,2
2500 + 7700L	*************	0,14 - 0,16	- 1,5 - 1,7
Change-over point	max. 0,76		9 - 11 mm RW
(Hydraulic measurement)		mind. 0,48	19 - 21 mm RW
) 	

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 MB 14,6 i

3. Edition

PE 8 P 120 A 320 LS 3807

RO 300/1150 PA 511

supersedes 3.82

1-8-7-2-6-3-5-4 je 45° -0.5° (-0.75°)

company.

Damiler-Benz OM 422 LA

Values apply to

engine:

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

1 680 750 067

276 kW(375 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0-4,1

mm (from BOC) 7v1

Rotational speed rev/min 1	Control rod travel mms	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,	1 18,9-19,1	0,5(0,9)			
300	4,8-5,	0 1,2-2,0	0,8(1,2)			
1150/600	11,6+0,1	C, Sp.2 u. 5	0,75(1,2)			
500	10,1+0,1	C, Sp. 5 ,	0,75			
]		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

I		Full-load : Setting po	speed regulation oint Test specifications 4			Idle speed regulation Setting point Test specifications (5)			Torque control		
rev/min	Control rod travel mm	rev/min 3	Cactrel red travel mm	Control red travel mm 5	rev/min 6	rev/min 7	Control red travel	rev/min 9	Control rod	rev/min	travel
600	19,1-20,8	600	20,0	10,7	1190-1205	300	4,3	100	min.6,0	-	•
VH =	max. 46°			4,0	1250-1280			300	4,2-4,4		
				1350	0 - 1,0			335-	375=2,0		

Torque-control travel on flyweight assembly dimens

1190-1205 min

1 mm less control rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

	letrvery on control lever np. 40°C (104°F)	Control rod stop 3	Fuel deliv	ery characteristics	Starting fi	tuel delivery 6
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes/mm
LDA 900 LDA 1150	0,7 bar 189,0-191,0 (186,0-194,0) 0,7 bar 185,0-189,0 (182,0-192,0)	-	LDA 600 LDA 500	0,7 bar 182,0-186,0 (179,0-189,0) 0 bar 139,0-141,0 (136,0-144,0)	100	140,0-160,0

Checking values in brackets

2.83

Geschaftsbereich KH. Kundendienst, Kfz-Ausrustung.
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Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

MB 14,6 i

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 P LS 3807	0,44		11,1-11,3
+ RQ PA 511		0,70	11,6-11,7
		0	10,1-10,2
		0,34	10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 3,5c 6 1.Edition

En

VA 4/100 H 1250 CR 68 O 460 304 195

supersedescompany IHC engine D 206-TD 7 C

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,04
Setting of the pointer at a stroke of 1 mm in

relation to outlet "A".		Fie setting see reverse side			
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,2-5,2	mm		
1.2 Supply pump pressure	800	5,1-5,6	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	60,5-61,5	cm³/1000 strakes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes	<u> </u>	
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	21,0-29,0	cm ¹ /1000 strokes		

2. Test Sp	ecificatio	ns 180-300(150-	es in plackets		
2.1 Timing device	rev/min	Beginn 400 1,1-2,1(0,8-	800 2,4) (3,9-5	1100 ,5) 6,1-7,1(5	1150-1250 ,8-7,4) 7,0-7,7(6,7-8,0)
22 Supply pump	rev/min kp/cm²	200 2,1-2,6(1,9-	800 2,8) (4,9-5		1250 6,8-7,3(6,6-7,5)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-1	10)		1250 55-100(40-110)
23 Fuel deliveries	<u></u>	<u> </u>			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1350-1400 (1330-1420) 1300 1230-1250 1100 800 600	1	(20,0-30,0) (59,0-64,0) (60,0-62,0) (52,0-57,0)	
	Stop	1250	0		
idle stop	Full	390-440 (370-460) 350	0	(11,0-19,0)	
End .stop	Start	100 220-300	mind.90,0	·	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension 3,0 mm Dimension 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 3,5c7 1. Edition

En

VA 4/100 H 1250 CR 68-1 0 460 304 231 supersedes companJHC engine D 206

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-stroke setting 0,5 mm
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

relation to outlet "A"			Pr	e-setting see rever	se side
1. Settings	rev/min	Settings		Charge-air press.	Difference in delivery cm ³
1.1 Timing device travel	800	4,2-5,2	mm		
1 2 Supply pump pressure	800	5,3-5,8	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	55,5-56,5	cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1 5 Start	100	min. 90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0	cm ³ /1000 strokes		
	į.	1			ļ

2.1 Timing device	rev/min	75 Checking value 170-320(140-	800	1100-1250	
,	mm	Beginn 400 1,2-2,2(0,9-	2,5)(3,9-5,	1000 5)5,7-6,7(5,4-	1100-1250 -7,0)7,0-7,7(6,7-8,0)
22 Supply pump	rev/min	200	800		1250
	kp/cm²	2,1-6,2(1,9-	2,8)(5,1-6,	0)	7,1-7,6(6,9-7,8)
Overflow delivery	rev/min	500			1250
	cm³/10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	:	Charge-air pressure kp/cm²
End stop	Full	1380-1430 (1360-1450) 1300 1260-1280 1200 800 500		(30,0-40,0) (50,0-55,0) (55,0-57,0) (47,0-52,0)	
	Stop	1250	0		
idle stop	Full	420-470 (400-490) 350	0	(11,0-19,0)	
•	Start	100	mind.90,0		
End stop		220-320		•	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension (v - mm Dimension (v - mm

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 HAN 3,1a 5

2 Edition

VA 6/100 H 1700 CR 119 CR 119-1

0 460 306 108 0 460 306 109 company Hanomag

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

engine D 161 L All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment **VDT-WPP 161/4 B** Pre-setting see reverse side

supersedes 82

Pre-stroke setting 0.3 mm \pm 0.02 (\pm 0.04) Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

2. Test Specifications Checking values in brackets

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3-5,1	mm		
1.2 Supply pump pressure	1500	6,3-6,8	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1200	49,0-50,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0	cm ³ /1000 strokes		3,0
1 5 Start	100	mind.60,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1800	26,0-34,0	cm ³ /1000 strokes		

rev/min	650-810(620-	840)	1500	1550-1700
mm	Beginn		(4,0-5,4)	5,2-5,9(4,9-6,2)
rev/min	200		1500	1700
kp/cm²	1,2-1,7(1,0-	1,9)	(6,1-7,0)	7,0-7,5(6,8-7,7)
rey/min	500			1700
cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
Fuff	1880-1960	0		
	I -		(25 0-35 0)	
	1700	42,0-45,0	(41,0-46,0)	•
	1200	ļ	(48, 5-50, 5)	
	500	39,0-43,0	(38,0-44,0)	
		·		
Stop	1700	0		
ļ	#50 F00			
Full		0		
	100	mind.60,0		
Start	150-250			
	rev/min kp/cm² rev/min cm³/10 s Delivery lever Fu#	rev/min 200 kp/cm 1, 2-1, 7(1, 0- rev/min 500 cm³/10 s 55-100(40-1 Delivery lever rev/min	Reginn 200 1,2-1,7(1,0-1,9) 1,2-1,7(1,0-1,9	mm Beginn (4,0-5,4) rev/min 200 1500 kp/cm² 1,2-1,7(1,0-1,9) (6,1-7,0) rev/min 500 cm³/10s 55-100(40-110) Delivery lever rev/min cm³/1000 strokes Full 1880-1960 (1860-1980) (25,0-35,0) (1700 1200 (48,5-50,5) 39,0-43,0 (38,0-44,0) Stop 1700 0 Full 450-500 (430-520) 0 mind .60,0

Angle to the stop-plate	Pre-setting dimensions					
Pump α = 25 ± 4° β = 55 ± 8° Y = 30 - 8° δ = 60 + 8°	Pump Dimension IV= 4,0 mm Dimension V= 24,6 mm					

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 8,0 d 3. Edition

PE 6 P 110 A 720 RS3034 PE 6 P 110 A 720 RS3035

RQV 200-1200 PA275R EP/RSV 350-1200 P1/310R./. supersede2.79 company Scania **DS 8**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /10C strokes	cm ³ / 100 strokes	mm ·	cm³/100 strokes	mm
1	2	3	4	2	3	6
1200	11,6+0,	1 12, 1 - 12, 3	0,4(0,8)			2,5 ± 0,1 **
225	3,9-4,1	0,9-1,3	0,2(0,5)	*		(max. 2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

RNV 2750

RQV.. 275R

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding st	eeve tr
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control sever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Torque-control trave	
:	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	~	-	-	ca.9	100 225	min.5,5 3,9-4,1	200 1000	0,4-1,4 6,3-6,7
ca.62	10,6	1240-1250			,		370-	370=2,0	1240	8,2
	4,0 1500	1370-1400 O - 1,0							-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad de Control-roo Test oil tem		Rotational-speed limitation	Fuel delivery characteristics rev/min cm³/1000 strokes		Starting Idle switchin	fuel delivery ng point cm²/1000 strokes	Intermed rotationa Torque- travel rev/min	l speed
1	2	3	4	5	6	7	8	
LDA 1200	0,7 bar 121,0 - 123,0 (118,0 - 126,0		LDA 600	0,7 bar 119,0-123,0 (16,0-126,0		200-250 9,0 - 13,0		
			LDA 500	0 bar 80,0 - 84,0[(77,0 - 87,0)	1300 Isper			./,

mm less control rod travel than col 2

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

EP/RSV.. 310R

	2.7,100.00											
1 Upper ra	Upper rated speed Intermediate rated speed					4	ower	rated spe				que control
Degree of deflection of control lever	rev/min	Control rod travel mm	deflection travel of control			Degree deflect of con lever	tion	rev/min	Cont trave	trol rod el		Control rod travel mm
1	2	3	4	5	6	7		8	9		10	11
ca. 71	1200 1250	16,0 11,9				ca.	31	350		6,0	-	-
	1300	6,3	withou	t aux	iliary spi	ing		100 350	19	7-6,3		
5	1250 1320 1420	10,8-12,4	with a	uxilia	ary spring			400 520		3-4,5 3 - 1		:

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	Rotational- speed limitation		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idie	stop
Test oil temp	c. 40°C (104°F)	Note: changed to) rev/min				cm ³ /100G strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	<u> </u>	0	
1200	115,0-117,0 (11 2 ,0-120,0)	1240-1250*	600 &	119,0-123,0 (116,0-126,0)	310	200-250 9 - 13 4,0 mm RW sion max. 4		

Checking values in brackets

*1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure (g.p.)

Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	(g.p.) b	bar	(g.p.) bar	mm (1)
PE 6 P. RS 3034 + RQV. PA 275 R	0,40			11,2 - 11,7
			0,70	11,6 - 11,7
			0	10,0 - 10,1
			0,25	10,2 - 10,4

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 14,6 1 1 2. Edition

PE8P120A320LS3807 RQV 300-1150PA526-2 1-8-7-2-6-3-5-4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

superseden 82 companyDaimler-Benz engine: CM 422 LA 276 kW (375PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) 3.95-4.15) Rotational speed Control rod **Fuel delivery** Difference Control rod Fuel delivery Spring pre-tensioning (torque-control valve) rev/min cm3/100 strokes 100 strokes cm³/100 strokes mrn 900 18,9-19,1 0,5(0,9)11,6+0, 300 4,8-5,0 1,2- 2,0 0,8(1,2)1150 11,6+0,1 C,Sp. 1 u. 2 0,75 600 11,6+0, C, Sp.4 u. 5 0,75 500 10,1+0,

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	e rated sp	eed	Lower rated	speed		Stidiog	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm (2a	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		1
1	2	3	4	5	6	7	8	mm (3)	rev/min	mm 11
max.	1150	15,2-17,8	-	-	-	ca.10	1	min.6,0 4,2-4,4	250 550	1,0-1,2 3,4-3,7
ca.65		1190-1200 1230-1260 0- 1,0				320-465		·	850 1150	4,9-5,3 7,6
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Control-ro			Starting Idia switchin	• •	Torque- travel	control 5		
rev/min	cfh³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
		3	4	5	6	7	8	9
LDA 900 LDA 1150	0,7 bar 189,0-191,0 (186,0-194,0) 0,7 bar 185,0-189,0		LDA 600 LDA 500	0,7 bar 182,0-186,0 (179,0-189,0 0 bar 139,0-141,0	100	140,0-160,0	-	-
	(182,0-192,0)			(136,0-144,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

 $\begin{tabular}{ll} rev/min & decreasing \\ increasing & pressure - in bar gauge pressure \\ \end{tabular}$

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE8PLS3807 + PA526-2	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7
·			

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 12,0 a Edition

PES 6 P 120 A 320 RS 3070

ROV 250-1100 PA 495

supersedes8 81

Values apply to

company: RVI

engine nozzle-and-holder assemblies 1 688 901 019

MIDR 063540 engine:

and engine fuel-injection tubing

1 680 750 067

223 kW (304 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testèrs

A. Fuel Injection Pump Settings (3,45-3,65) Port closing at prestroke

mm (from BDC) = RW 9.0 - 12,0 mm

		3,30-3,00				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,9-13,	19,4 - 19,7	0,5(0,8)			
250	5,2-5,4	1,5 - 2,3	0,8(1,2)			
						•
				<u>L</u>	<u>L</u>	<u> </u>

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	ed	Lower rated	speed	•	Sliding s	leeve trav el
deflection	Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection of control		Control rod travet	,	①
of control lever	rod travel mm	rev/min (2a)	of control lever	rev/min	mm (4)	lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100 1400	15,2-17,8 0 - 1	-	-	-	ca.12	100 250	min.6,8 5,2-5,4	200 500 850	0,3-0,6 3,0-3,2 5,0-5,2
ca. 66	11,9 4,0	1160-1170 1235-1265				290-400 3a			1150	8,4

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fifted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min c/h³/1000 strokes			(3)		Starting fuel delivery idle switching point rev/min cm³/1000 strokes		Torque- travei	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 194,0-197,0 (191,0-200,0)	1160-1170	LDA 1100	0 bar 151,0-154,0 (148,0-157,0)	100	130,0-165,0	,	
		·			100-	 170 (80-190)		

Checking values in brackets

* 1 mm less control rod travel than coi. 2

1.83

BOSCH

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
	Caage pressure Sar	dadge prossure	
PES 6 P. RS 3070	0,27		12,2 - 12,3
+ RQVPA 495		0,70	12,9 - 13,0
		0	10,6 - 10,7
		0,22	11,2 - 11,4
		·	
			·

Notes

(1) when n =

rev/min and gauge pressure =

WPP 001/4 MB 14,6 g 1

4. Edition

PE 8 P 120 A 320 LS 3807

RQ 300/1150 PA 511-2

superseded 82 company Daimler-Benz OM 422 LA

276 kW (375 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° $\pm 0.5^{\circ}$ ($\pm 0.75^{\circ}$) Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067 Au test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC) Zyl. 8

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
900 300 1150 600 500	11,6+0,1 4,8-5,0 11,6+0,1 11,6+0,1	1,2 - 2,0 C, Sp.1u. 2	ŀ			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Control rod Control rod		PRG check 1 Setting			gulation Test spe	cifications (4)	Idle speed regulation Setting point Test specifications (5)				Torque control		
4,0 1250-1280 300 4,2-4,4	rev/min		rev/min 3	nod travel	rod travel		rev/min 7	rod travel	ł	Control rod travel mm	rev/min	travel mm	
	600	19,1 -20	,8 600	9,9	_	i	300	4,3	300	4,2-4,4	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d Control
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:/ mm
LDA 900	0,7 bar 189,0 - 191,0 (186,0 - 194,0)	-	LDA 600	0,7 bar 182,0 - 186,0 (179,0 - 189,0)	100	140,0 - 160,0
LDA	0,7 bar		LDA	0 bar		
1150	185,0-189,0 182,0-192,0)		500	139,0-141,0 (136,0-144,0)		
Checking va	alues in brackets			٠		1.83

Geschaftsbereich KH. Kundendienst, Kfz-Ausrüstung.
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Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3807 + RQPA 511-2	0,44	0,70 0 0,34	11,1 - 11,3 11,6 - 11,7 10,1 - 10,2 10,5 - 10,7

Notes.

(1) when n =

rev/min and gauge pressure =

estoil-ISO 4113

PES 6 P 120 A 720 LS 388

6 - 2 - 4 - 1 - 5 - 3 je 60°

RO 250/1100 PA 452

supersede 80

company MAN

D 2566 MK

235 kW (320 PS-1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,95-3,15)

Port closing at prestroke mm (from BDC) 3,00-3,10

Zy1.6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1-13,	2 22,7 - 22,6	0,5(0,9)			
250	6,3-6,5	1,1 - 1,7	0,8(1,2)			
1100/650/500	/500	C, Sp. 4-5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider Full-load speed regulation PRG check 1 Setting point Test specificat		cifications (4)	idle speed regulation Setting point Test specifications (5)					Torque control			
rev/min	Control rod travel mm 2	rev/min 3	Control rati travel mm 4	Control red travel mm 5	rev/min 6	rev/min 7	Control rod travel rnm 8	rev/min 9	Control rod travel mm 10	rev/min	travel
600	19,2-20,8	600	20,0		1145-1160	250	6,4		,		1,3-11,4
1400	0 - 1,0	VH c	a.49 ⁰		1185-1215				6,3-6,5 90 = 2,0	900	11,8-12,0 12,6-12,7 13,1-13,2

Torque-control travel on flyweight assembly dimension a

0,7

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	rod travel cm ³ /1000 strokes / mm 7	
LDA 750	1,0 bar 222,0 - 226,0 (219,0 - 229,0)		LDA 650 LDA	1,0 bar 214,0 - 220,0 (211,0 - 223,0) 0,335 bar	100	225,0 - 245,0	
LDA 1100	1,0 bar 184,0 - 190,0 (181,0 - 193,0)		500 LDA 500	134,0 - 140,0	100-17	0 (80-190)	

Checking values in brackets

(Sp. 4-5 increase by \pm 3,0 cm³)

11.82

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

MAN 11,1 q 6 -2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6PLS388 + RQPA 452	0,34	1,0 0 0,61	10,9 - 11,0 13,1 - 13,2 9,4 - 9,5 12,5 - 12,9

Notes:

(1) when n =

rev/min and gauge pressure =

estoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 14,0 c 1

4. Edition

En ·

PE 8 P 110 A 920/4 LS 3020

RQV 250- 1 000 PA 306

supersedes

2.82 Scania

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} \pm 0.5^{\circ}$ (+0.75°)

company: engine:

DS 14-01 295 kW (401 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travei mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 000 225	13,5+0,1 3,9-4,1		0,4(0,8) 0,2(0,4)			3,3+0,1 (3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed	·	Stiding	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Siluriys	1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1 000 12,5 4,0 1 300	15,2-17,8 1 040-1 05 1 145- 1 1 0-1,0	D	•	-	ca. 8	225	min.5,5 3,9-4,1 335=2,0 mm	470 750	1,0-1,2 3,4-3,8 5,2-5,5 0 7,7
	<u> </u>				, (<u>За</u>)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) limitation intermediate speed		Fuel delivery characteristics 5a high idle speed 5b		ldie	fuel delivery 6	Torque- travel	control 5
rev/min 1	cm³/1000 strokes .	r ev /min 3	•	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm 9
LDA 1 000	0,7 bar 163,0-165,0 (160,0-168,0)	1 040-1	050*	LDA 600 LDA 500	0,7 bar 165,0-169,0 (162,0-172,0) 0 bar 127,0-131,0 (124,0-134,0)	100	190,0-240,0 / 20,0-21 mm RW	0	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

L19

Test at n =

500

 ${\small \mbox{rev/min}} {\small \mbox{decreasing}} {\small \mbox{pressure - in bar gauge pressure}$

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3020 + PA 306	0,7	0 0,44 0,32	13,5-13,6 12,0-12,1 13,1-13,2 12,3-12,5

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 k 1

2. Edition

PE 6 P 110 A 320 RS 423

RQV 335-1100 PA 435

supersegge2 companyo1vo engine:TD 70 G 138 kW (188 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		2,95-3,15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	10,7+0,1	9,9 - 10,1	0,4(0,8)			2,5 + 0,1
335	4,5-4,7	0,9 - 1,3	0,3(0,7)			(2,2-2,9)
					-	

Adjust the fuel delivery from each outlet according to the values in ________.

B. Governor Settings

Upper rated s	Upper rated speed			Intermediate rated speed			Lower rated speed			O' d'	
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm	
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,0	300	1,4-1,6	
ca. 64	9,7 4,0 1300	1140-1150 1210-1240 0-1,0					1	4,5-4,7 $510 = 2,0$	500 800 1100	3,2-3,5 5,0-5,2 7,9	
						3 a					

Torque control travel a =

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed 2b limitation intermediate speed	Fuel delic high idle s			Starting fuel delivery 6 Idle switching point		control 5
:ev/min 1	cm ³ /1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA	0,75 bar	1140-1150 *	LDA	0 bar	100	150,0-180,0	•	-
700	99,0-101,0 (96,0-104,0)		700	77,0-80,0 (74,0-83,0)	335	11,0-15,0		

Checking values in brackets

* 1 mm less control rod trævel than col. 2

1.83

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travet- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
PE6PRS 423 +PA 435	0,75	0 0,17 0,09	10,7 - 10,8 9,5 - 9,6 10,4 - 10,5 9,8 - 10,0		

Notes

(1) when n =

rev/min and gauge pressure =